

Artificial Grindstones.

We have already noticed in this journal the success which has attended the application of Mr. Ransome's beautiful process to the manufacture of artificial grindstones—a success which is so marked that there seems little doubt that the use of natural stones for grinding purposes will eventually become the exception instead of the rule. Among other firms, Messrs. Bryan Donkin & Co., the well-known engineers, of Bermondsey, have tried experiments which very decisively prove the advantages of the artificial over the natural stones. Messrs. Donkin were first supplied with a pair of Mr. Ransome's artificial grindstones in December last; and early in the present year they carefully tested these stones and compared their efficiency with some Newcastle stones at their works. Both the natural and artificial stones were mounted in pairs on Muir's plan—a system in which the peripheries of the two stones of each pair rub slightly against each other, with a view of causing them to maintain an even surface—and the two sets of stones were tried under precisely the same circumstances, except that the Newcastle stones had a surface speed more than 20 per cent greater than that of the others.

The trials were made as follows: A bar of steel, $\frac{3}{4}$ in. in diameter, was placed in an iron tube containing a spiral spring, and the combination was then arranged so that the end of the bar projecting from the one end of the tube barely touched one of the artificial stones, while the other end of the tube rested against a block of wood fixed to the grindstone frame. A piece of wood of known thickness was then introduced between the end of the tube and the fixed block, and the spiral spring, being thus compressed, forced the piece of steel against the grindstone. The same bar of steel was afterward applied in the same way, and under precisely the same pressure, to the Newcastle stone, and the times occupied in both cases in grinding away a certain weight of steel from the bar were accurately noted.

The results were that a quarter of an ounce of steel was ground from the bar by the artificial grindstone in sixteen minutes, while to remove the same quantity by the Newcastle stone occupied eleven hours, and this notwithstanding that the surface speed of the latter was, as we have stated, more than 20 per cent greater. Taking the 20 per cent greater speed of the Newcastle stone into account, it will be seen that the 11 hours run by it were equal to 13 $\frac{1}{2}$ hours at the same speed as the artificial stone, and the proportional times occupied by the two stones were thus as 16 minutes to 13 $\frac{1}{2}$ hours, or as 1 to 52, nearly!

Such a result as this is something more than remarkable, and it is one which would scarcely have been credited, even by those who made the experiments, if it had not been fully corroborated by subsequent experience in the working of the artificial grindstones. Since the experiments above described were tried, Messrs. Donkin have set another pair of the artificial stones to work, and these, which are now in regular use, have given more satisfaction than those first tried. The saving in time, and consequently, in labor, effected by the use of the artificial grindstones is, in fact, so great that Messrs. Donkin have determined to use these stones exclusively in future; and we may add that the artificial stones are so much preferred by the workmen that those men, even, who are employed in shops at some distance from that in which the stones at present in use are situated prefer taking the trouble to go to them to using the Newcastle stones in their own shops. In addition to their great efficiency, the artificial grindstones possess the advantages of being able to be manufactured of any size, and of any degree of coarseness of grain, and they can thus be specially adapted to any particular class of work, while the process of their manufacture insures their being of uniform texture throughout, and free from the flaws and hard and soft places found in natural stones. Altogether, we believe that the general adoption of the artificial grindstones is merely a matter of time.—*Engineering.*

Mutability of Species.

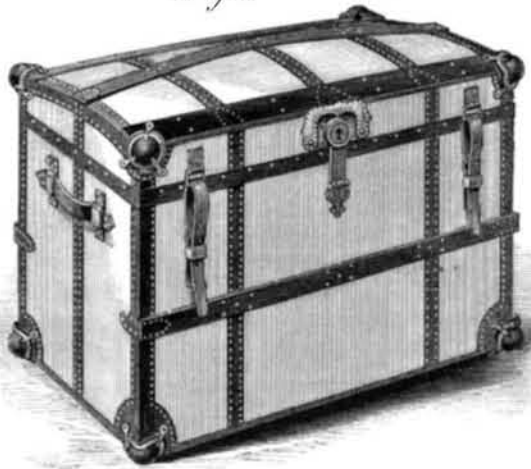
In a recent communication to the Geological Society of Paris, M. A. Gaudry pointed to some striking facts favorable to the theory of the mutability of species. The sand pits in the environs of Paris, and indeed all drift deposits in general, are very rich in remains of the mammoth or primitive elephant, and of the *elephas antiquus*. These remains chiefly consist of molar or back teeth, in which characteristic differences may be easily recognized. They consequently pertain to two different species, and in order to ascertain whether there exists any close parentage between them, M. Gaudry goes back to the pleistocene period, which lies between the upper tertiary or pliocene, and the drift strata. Now the pleistocene forest-bed of Norfolk contains a quantity of molars of each of the above species, but it also comprises others slightly differing from both, and also intermediate between those of *elephas antiquus* and *elephas meridionalis*, the latter ceasing to exist when the former and the mammoth begin. These again disappear after the drift, and are followed by other species. Here then we perceive a succession of species, each of which have sprung from the preceding one. During the tertiary period there existed a breed of horses to which paleontologists have given the name of *hipparion*; they had small lateral fingers, thus forming a link between pachydermata and solipedes, which latter was considered perfectly distinct so long as the genus *equus* was characterized by a single finger at each foot. Now, Mr. Owen, on examining the horses' teeth found in the cavern of Oreston, discovered that the *equus pholidens* to which they belonged was intermediate between the *hipparion* and the present horse. In the *equus pholidens* the enamel of the teeth presents more folds than in the living breed; but in the molars found in our gravel pits,

M. Gaudry has perceived gradations between those presenting many and those presenting fewer folds, whence he concludes that our horse is a descendant of the *equus pholidens*. A hippopotamus, the remains of which were discovered at Grenelle a few years ago, appears not to differ materially from the race that now inhabits the rivers of Africa; and yet at the time the owner of these venerable relics was disporting himself in the Seine, the climate was much colder here than it is now; so that Mr. Gaudry concludes with great plausibility that, if we had the whole skeleton, some differences would probably appear.

HOUSE'S IMPROVEMENT IN TRUNKS.

Whether unjustly or not, the porters and baggage men employed at our hotels and railroad stations have been characterized as "baggage smashers," a term for which the trunk makers may be partially responsible. Wherever the fault may be it is certain that much damage and injury to

Fig. 1



property, often of a fragile nature, ensues when one is compelled to travel. Almost invariably a severe blow on the corner of the trunk will break the back or burst the trunk. The object of the contrivance shown in the accompanying engravings is to prevent a portion, at least, of this damage by providing cheap but efficient guards. One of these is seen detached in Fig. 2, and its application to a trunk exhibited in Fig. 1.

A frame of malleable metal—either malleable iron or cast brass—encompasses a triangular cup of thick vulcanized rubber, shown plainly at A, Fig. 2. This cup is formed with a flange which rests on the bars of the metallic frame. Each of the three prongs, B, of the frame have screw holes by which the shield is attached to the corners of the trunk. The appearance of the trunk or chest when these are attached is clearly exhibited in Fig. 1 without the necessity of further reference.

It is easily seen that these fixtures can be quickly secured to any trunk, chest, valise, etc., and while preventing the jar and breaking of the trunk or its contents, render both more secure. To those who travel—and everybody travels more or less nowadays—this simple device will recommend itself. The elasticity of the rubber and its resistance to abrasion insures great security.

It was patented Feb. 1866, by J. A. & H. A. House. For particulars J. C. Gillmore, agent, may be addressed at No. 26, Fourth Avenue, New York city: Mr. Gillmore sells either the trunks with improved attachment or furnishes the shields to trunk manufacturers.

The First Steam Voyage Across the Atlantic.

The importance of the navigation of the ocean by steam first came to be fully realized in this country in the year 1818. Many scientific men doubted the feasibility of such navigation, but there were a few men of intelligence and enterprise who had the greatest faith in its practicability. Among this latter class was Mr. Scarborough, of Savannah, Ga., the senior partner of the firm of Scarborough & Isaacs, one of the leading commercial houses in the South. In 1818 Mr. Scarborough, willing to show his faith by his works, came to New York and made purchase of a ship of about 350 tons burthen which was then on the stocks, determined with her to settle the mooted questions as to the ability of steam vessels to successfully navigate the ocean. The ship was named the *Savannah*. Mr. Scarborough then engaged the services of Captain Moses Rogers, a person we are informed "of great mechanical skill and ingenuity, who had been familiar and identified with the experiment of Fulton." Captain Moses Rogers was placed in charge of the engine and machinery of the *Savannah*. An able and faithful sailor was now wanted to navigate the vessel, and such a man was now found in Captain Stevens Rogers of this city. Under his command the *Savannah*, having been duly equipped with engine and machinery, steamed out of New York harbor on the 27th day of March, 1819, bound to Savannah on her trial trip, which was most successfully made.

On the 26th of May in the same year she left Savannah for Liverpool, making the trip in twenty-two days, during eight-

een of which she was propelled by steam power. From Liverpool the *Savannah* went to Copenhagen, Stockholm, St. Petersburg, Cronstadt and Arundel, and from the latter port returned to Savannah, making the passage in twenty-five days.

The log book of the *Savannah* was sent to the Navy Department in 1848. Captain Stevens Rogers is yet living in this city. For a number of years past he has been collector of city taxes, but at the election in June last he was suspended. It has been often suggested that it would be no more than a simple act of justice on the part of the government to settle a pension upon the pioneer of ocean steam navigation, but no active steps have as yet been taken to accomplish the substantial recognition of his services.—*New London Star.*

Editorial Summary.

THE GLACIAL EPOCH.—At a late meeting of the New York Lyceum of Natural History, Mr. J. W. Reid presented a paper on the drift deposits of the United States. He accounted for the intense cold necessary to produce the immense glaciers of that period by the precession of the equinoxes, which, every 10,500 years, has the effect of transferring the great oceanic waters from one hemisphere to the other, the sun at that period remaining eight days longer in one hemisphere than in the other. At present, the winters of the southern pole are eight days longer than with us; an ice continent more than twice the area of Europe has formed there, and a map will show the great preponderance of water in the southern hemisphere. The extreme of cold at the Antarctic pole was reached in 1248, since which date the climate has been growing milder, while north of the equator it has been growing colder, and but ten thousand years remains before the temperature which twenty thousand years ago formed glaciers reaching to the top of Mount Washington, will be the prevailing one of North America.

ROSY AURORA.—Among the latest explanations of the red glow and splendor of sunrise and sunset, which has been given, is that of Dr. E. Lommel, in Poggendorff's *Annalen*, in which he shows it to be an effect of diffraction of light as viewed through a series of dark or partially dark screens. He lays it down as an axiom that a point of white light, viewed through a sufficient number of groups of screens, appears not merely reddish itself, but also is surrounded by a still more strongly red-colored aureole of diffracted light. The lower strata of the atmosphere is full of minute corpuscular bodies—dust, organic and inorganic, carbon or watery particles—which serve as dark screens, and when the sun is low, the rays traversing a long range of atmosphere, undergo diffraction, and by superimposition of adjacent points of light, the effect of redness is deepened. A mere red glow, without brilliance, is occasioned by solid particles, as we see the sun red when viewing it through smoke, aqueous vapor, when present in the air, makes a diffused reddish light.

A GRAND ENTERPRISE.—The French government contemplate a new and vast project, which if carried out will be of incalculable importance to that nation. This is to enlarge the *Canal Des Mers*, so that large vessels may pass directly from the Atlantic ocean to the Mediterranean, without passing under the guns of the fort of Gibraltar. At present the canal connects with the Garonne river at Toulouse, and falls into the Mediterranean near Agde; the river reaching the ocean at Bordeaux completing the chain of communication. In order to fill the canal when it is enlarged, it is proposed to intercept the innumerable mountain streams, from the Pyrenees and mountains of Auvergne, and imprison them in huge reservoirs whence the water can be drawn as needed.

TESTING SWORD BLADES BY MACHINERY.—The Austrians fasten the sword by its haft into a frame and submit it with a known and adjustable velocity, to a certain number of strokes at the mid length of its edge against a block of beech wood. The sword is also subjected to a slanting or glancing blow at a given angle and velocity against the side of a cylinder of hard wood. The edge is tested by blows against a piece of wrought iron of a given breadth, and proof of the blade's elastic temper is obtained by bending and suddenly releasing it within certain limits. The peculiarity of these trials is that the nature and extent of every test is determinative and may be made adjustable.

PRESERVING GRAIN by storage in a vacuum is a plan recently recommended by an English gentleman, Dr. Louvel. This gentleman proposes constructing large sheet iron cylinders, which are to be filled with the wheat or corn, and the air exhausted as far as possible by an air pump. The inventor has placed in a cylinder of the kind, wheat that had lain in a river for twenty-four hours, and become saturated with moisture. At the end of five days it was found in excellent condition, and made first rate flour and bread. A more practical application of this plan seems to be for the preservation of ship's biscuit from weevils and other parasites.

THE insuring of steam boilers and other property affected from explosions is the object of a new company recently started at Hartford, Conn. Heretofore, there have been no companies in this country which have issued policies covering this class of risks, although in England they have been in successful operation for a number of years. We are very glad that manufacturers and others requiring the use of steam can now insure themselves against loss in event of an accidental explosion, if fire does not ensue from the result. The name of the new company is the Hartford Steam Boiler and Inspection Company. Capital \$500,000.

THE ADVANTAGES OF A STOVE-PIPE HAT.—Every reformer and most of our writers have something to say condemnatory of the stiff high crowned hat and advocate the soft felt hat as a substitute. While the Hon. Charles Sumner was recently inspecting a sleeping car on a Michigan railroad the train suddenly started. This threw him forward and he struck the ground with his hat, damaging that article considerably, and inflicting a slight injury on his head and face. Had Mr. Sumner worn a felt hat, his head instead of its covering would have sustained serious injury. The stove-pipe hat will undoubtedly have one distinguished advocate at least after this.

TEXTILE FROM HOP VINES.—Another discovery in the field of textile material, is that of a Belgian, who has shown that a second, most valuable, and heretofore useless product, can be furnished by the hop vine. After the hop blossoms have been gathered, the stems are steeped like hemp; when this operation has been completed the stalks are dried, beaten with a wooden beetle, and then the threads come off easily. After carding and working in the ordinary way, a very strong cloth is obtained. The thickest stalks also yield the material for several kinds of rope.

WHERE THE MONEY GOES.—A letter from a lady in Paris, just received, says: "Never will so many Americans be in Paris at one moment again;" and she added, "what a deal of money they leave. I know some New York and Western ladies who have bought such quantities of laces. Every lady who comes to Paris must buy a real black lace shawl and silks. One lady bought twenty thousand dollars' worth of European luxuries, mostly for presents to friends, and one gentleman, on his way to his Western home, takes fifteen trunks filled with laces, silks, etc."

THE SPECTRUM TEST.—So delicate is the spectrum test in determining the presence of certain metals that it is possible to recognize in this way the 1-60,000th part of a grain of potassa or baryta; the 1-1,000,000th of a grain of lime or strontia; the 1-60,000,000th of a grain of lithic, and the 1-100,000,000th of a grain of soda. Dr. Letheby, a distinguished London chemist, has detected by this means the presence of blood in the stains of linen which had been laid away for seventeen years.

HOW TO PRESERVE EGGS.—In 1791, Wm. Jayne, of Sheffield, England, obtained a patent upon the following method which he averred would preserve eggs in a good and fresh condition for two years or more:—Keep the eggs in a compound made of 1 bushel quick lime, 32 oz. salt, 8 oz. cream of tartar, with enough water to form a mixture so that an egg will swim with its top just above the liquid. If any of our readers should test this simple method we should be glad to hear the result.

FOR POLISHING STEEL.—A German engineer states that oxide of chromium is the best substance for polishing steel. The article can easily be prepared by heating bi-chromate of potash to redness. It is also used for painting on porcelain. One equivalent of chromic acid is reduced to oxide of chromium, and on well washing the residue of the ignition neutral chromate of potash is washed away and the oxide is left behind.

COLORING WOOLEN YARN.—An agricultural exchange asserts that yarn, plain or mixed, can be colored a firm blue, even superior to that attained with indigo, by mixing common purslane (*portulaca oleracea*) macerated fine, and boiled for some hours with logwood chips, in the proportion of a half bushel of the former and quarter of a pound of the latter. Two ounces of alum is used as a mordant for every pound of wool.

THE AGE OF INVENTION.—It appears from the records of the Patent Office, that in 1864 the number of applications for patents was 6000; in the following year the number increased full fifty per cent; in 1866, 15,000 applications were filed, and this year will probably increase the number to 25,000. The number of caveats filed last year was twenty-seven hundred, and this year there will be upwards of four thousand.

HOW TO REMOVE FOUL AIR FROM WELLS.—Ebenezer Robinson, of Philadelphia, Pa., suggested, in 1793, a very quick and simple method of removing foul air from wells, cesspools, etc. He says he found the plan to succeed even where the air was so bad that neither flame nor life could be supported. His plan was to lower a leathern hose pipe into the well, and by means of a large bellows, inject fresh air.

THE MUD CROP OF PARIS. Among the many economies of municipal administration in Paris is the sale of the yearly "mud crop." In 1823 this yielded only \$15,000. It now brings \$120,000, and when left for some time in rotting tanks is sold for manure, at the increased valuation of \$600,000. If we could but make the mud crop of our American cities equally profitable!

MULTUM IN PARVO.—A very neat and convenient article in the shape of a pen holder has been introduced to the public by the Morse Eraser Company, of Philadelphia. It combines with a pen holder of ordinary shape and size, a pencil sharpener, eraser, and burnisher. Add to it a penknife, which can be easily done, and the article will be complete.

THE NEW PLANET recently discovered by Prof. Peters, of Hamilton College, N. Y., and at very nearly the same time by Prof. Tietjen, of Berlin, makes up the full number of these heavenly bodies now known to one hundred. The name of Urdina has been given to the stranger.

A PARTY of capitalists recently visited Marsh's Railroad, (an illustrated description of which was published in this paper before the enterprise was commenced), which is being built on the summit of Mount Washington, and a new company has been organized, fixing the capital at \$200,000. The Giant's Grove is being graded previous to erecting a large hotel on it, and the turnpike has been completed from that point to the railroad at the foot of Mount Washington. A little over a mile of the railroad has been constructed, and it is expected the balance will be finished next year.

THE MARITIME INTERNATIONAL EXHIBITION, which is to be held next year at Havre, promises to be interesting, as it will certainly be in many circumstances novel. The idea of it was suggested by the circumstance that the marine productions and objects connected with them have necessarily been only partially represented in the Champ de Mars. There are to be three classes of subjects: navigation and life-saving apparatus; various articles of commerce and manufactures; and matters connected with fishing and pisciculture. The whole is to be under the very highest patronage.

The establishment of a National School of Mines is to be proposed in Congress at the coming session. It is estimated that \$10,000,000 per annum may be saved by the adoption of a better system in the working of our ores.

We regret to hear of the death of Prof. McGauley, connected with the *Scientific Review*, the organ of the Inventors' Institute, London. Professor McGauley resided for a time in Canada, and his friends there will regret to learn of his death.

It is said that the only fruit which grows in every climate is the strawberry. It is the only fruit which somewhere on the earth is picked every day the year round.

THE NOVEMBER METEORS.

According to programme, the expected meteoric display came off early in the morning of the 14th inst., and so far as numbers are concerned, Prof. Loomis, of Yale College, pronounced the exhibition more remarkable than the one our European neighbors were favored with one year ago, and but little inferior to that seen in the United States in 1833. Reasoning from analogy in the case of the shower thirty-four years ago,—as we mentioned in our last issue,—astronomers confidently predicted this meteoric exhibition, and arrangements were made in most of our observatories for making systematic records of the shower. During the greater part of the night the task of mapping down on star charts the course and exact time of appearance of solitary meteors, was an easy one; but towards morning their appearance became so frequent that the observers ceased their efforts to time and map them, and only counted. The authority above quoted states that at New Haven the shower reached its greatest magnitude at 4.30 A. M., over five hundred being then counted by one observer in an hour. And as one individual can watch but about one-sixth of the hemisphere, according to the usual method of computation, 3000, at least, were at this time visible in the whole heavens, and without doubt, twice that number actually came within the field of vision, but were eclipsed by the superior light of the full moon. From all parts of the country, have come reports of the beauty and brilliancy of the shower. Even the inhabitants of our Pacific States witnessed it, although, of course, it reached its full grandeur at an hour much earlier than with us. The display was not visible in England, or on the Continent.

The time when the shower attained its greatest brilliancy was, in this section, two hours later than that given by European observers of last year, and next year the display, if there be any, will not begin until ten o'clock A. M., Washington time, and will, therefore, be seen only in the Pacific Ocean.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The Foxdale mine in the Isle of Man, is already one of the richest lead and silver mines in Great Britain; but its value has been very much increased by the discovery of an ore hitherto unknown to exist in that country. The name of the ore is "Fahlerz" (tetrahydrate). It yields an immense amount of silver.

A steamer has left Havre, having on board a large number of French locomotives, consigned to Russia. The report that the Crenset works had received an order for eighty locomotives—a report which has been freely published by our exchanges—it appears is a little premature, the affair not as yet being definitely concluded. The pecuniary assistance proposed to be afforded by the Russian government this year, to the work of railway construction in that empire, is about \$15,000,000.

White chrome ore is found in Hanover, near Gettysburg, Pa., which yields about 55 per cent of iron. This ore is of the same kind as is now shipped from Havre de Grace, to Sheffield Eng., to be used in the cutlery establishment of that place.

The first sleigh-bell ever made in this country was manufactured at Chatham, Conn., in 1780, and that town still retains a monopoly of this business.

In the city of Dresden, albumenized paper is manufactured at the rate of upwards of 6,000 reams per annum, a quantity that would suffice to print more than 120,000,000 cartes de visite. The whites of 2,000,000 eggs are annually consumed in preparing this paper the yolks of which, are used by tanners for preparing the finer kinds of leather. After preparation, the paper is carefully assorted, and from ten to fifteen per cent is rejected for photographic purposes but is used by Dresden printers for color printing.

The Inventors Manufacturing company established one year at Terryville, Conn., operate the largest shears and scissors factory in the country, and turned out last year about 60,000 dozen, worth from \$600,000 to \$700,000.

The "Lake Shore" railway lines between Buffalo, Cleveland and Toledo, are about to consolidate with the Michigan Southern on the one hand and with the New York Central on the other, thus placing the whole route under one board of management. If effected, this combination will represent some \$150,000,000 of railroad capital.

At the head of Thunder Bay, on Lake Superior, two veins of native silver have been discovered; one seventeen the other eighteen feet in width, and one of them extending some three or four miles.

Jasper is now procured to almost any required extent at St. Gervaise, in Savoy. One quarry has a depth of 60 feet and a surface of at least 24,000 square yards.

The exports of iron and steel of British manufacture from the United Kingdom has undergone a wonderful expansion of late years. In 1847 these exports amounted to 550,000 tons; in ten years this increased to 1,500,000 tons. Comparing 1866 with 1847 there is an increase of no less than 266.38 per cent. Last year appears to have been the best twelve months on record in valuation of exports.

The Spanish journals state that the small-arms manufactory at Placentia is working night and day, executing an order given by the French Government for muskets of the new pattern. A French agent is on the spot, and has offered a premium of 30 reals for each Chassepot delivered before the time stipulated.

The failure of the great house of Decoquville, whose iron foundries are to be sold by public auction on the 30th inst., is traced to the fatal effect of the Paris Exposition on French trade.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

SELF-SETTING GAME TRAP.—Alfred Wilkin, McConnelsville, Ohio.—This invention has for its object to furnish an improved trap which shall be durable, cleanly, entirely free from the odor of animals, requiring little care to keep it in working order and capable of destroying large numbers of animals at one setting.

BOLT FASTENING.—V. Lapham, El Paso, Ill.—This invention has for its object to furnish an improved fastening for thill coupling bolts, clevis bolts, and other pivoting bolts which will hold the bolt securely in place and which can at the same time be easily and quickly attached and detached.

LAMP.—James Lee, New York city.—This invention has for its object to furnish an improved lamp so constructed and arranged as to guard against explosion by preventing the undue heating of the upper part of the oil reservoir and at the same time to guard against the lamp's being broken should it accidentally fall.

HAY RAKE AND TEDDER.—J. M. Law, Portlandville, N. Y.—This invention has for its object to furnish an improved attachment for hay rakes by means of which hay may be shaken out and stirred up or turned quickly, conveniently and thoroughly.

LEVELING ATTACHMENT FOR STEAM HARVESTERS, ETC.—Benjamin F. Cook, Olema, Cal.—This invention relates to a new and improved leveling attachment to be applied to steam harvesters and other agricultural implements which are mounted on wheels for the purpose of keeping the main frame in a horizontal position in its transverse section when the machine is passing over inclined ground. The invention consists in interposing between the back axle of the machine and the bolster above it a wheel having its rim beveled or made inclined and connected with a winlass or capstan in such a manner that the wheel may be turned with facility and the main frame of the machine brought to or retained in a horizontal position when the wheels on which the machine is mounted are passing over inclined surfaces.

HOISTING APPARATUS.—A. F. Crosman, Steamer *Ossipee*, North Pacific Squadron, U. S. Navy.—This invention is designed to facilitate the hoisting of small boats at the sides of ships and other vessels. The invention consists in a novel arrangement of the davit tackles whereby the tackle of both davits are operated and the boat hoisted or lowered by the manipulation of a single rope. The invention further consists in a novel means for releasing simultaneously both ends of the boat from the hooks of the tackle blocks when the boat is lowered so as to reach the water and thereby prevent the capsizing of the boat a contingency of not unfrequent occurrence when the water is rough.

DRYING ATTACHMENT FOR PAPER-RULING MACHINES.—R. J. Groshans, Buffalo, N. Y.—This invention consists in applying to paper-ruling machines a revolving fan in such a manner that the ink on the freshly ruled paper will be rapidly dried and the paper under the influence of the blast generated by the revolving fan be made to drop evenly into the box or receptacle prepared to receive it.

COMPOSITOR'S COPY HOLDER.—P. A. La France, Elmira, N. Y.—This invention relates to a new device for holding the manuscripts on printers' type cases and consists in the arrangement and construction of a platform which rests on suitable supports provided for that purpose on the type case and which can be easily moved laterally on the said type case to enable the compositor to reach all the types.

MACHINE FOR UPSETTING, CUTTING AND PUNCHING IRON.—J. J. Rose, Elmwood, Ill.—This invention has for its object to improve the construction of the machine patented by the same invention Aug. 1, 1853, and numbered 49,158.

BELT FASTENING.—David Wigger, New York city.—This invention relates to a new belt fastener which is so arranged as to be easily opened, and which, when closed, can be securely locked, and which is of great strength and durability.

FISHHOOK.—A. I. Lenhart, New Brunswick, N. J.—This invention relates to a new and improved fishhook of that class which are provided with a spring, a catch or fastening, and one or more supplemental hooks, which, when the fish seizes the bait, are released and spring so as to penetrate the fish and secure it. The invention consists in a novel construction of the device, or the arrangement of the parts, whereby the capture of the fish, when the latter nibbles or seizes the bait, is rendered almost certain.

BLEACHING PAPER STOCK.—S. T. Merrill, Beloit, Wis.—This invention has for its object the bleaching of paper stock in a more economical manner than hitherto, and consists in subjecting the stock to the action of chlorine gas while the former is undergoing the process of comminution in what is known as the "rag engine," or the stock agitated in a close vessel.

RAILWAY TRAVELING HOOK.—Wm. R. Oatley, Rochester, N. Y.—This invention relates to a new and improved hook by which travelers in railway cars may suspend any hand luggage from the hat racks over the seats. The invention consists in connecting two hooks together by a swivel joint, one hook being of sufficient dimensions to catch over a rail of the rack, and the other hook of such size that a strap, string, or cord may be readily suspended or fitted upon it.

COMBINED CHIMNEY AND VENTILATOR.—A. S. Whittemore, Willimantic, Conn.—This invention consists in combining a chimney or fire with a ventilator in such a manner that the compartments of a building may be thoroughly ventilated and the chimney or fire at the same time rendered perfectly fire proof.

PAPER RULING MACHINE.—Edmund A. Warren, Brooklyn, N. Y.—This invention relates to a new and improved machine for ruling paper, and it consists of a rotating cylinder provided with nippers to grasp and hold the sheets of paper to be ruled, and also provided with adjustable cams, the above parts being used in connection with a pen beam, and all constructed and arranged so as to operate in a perfect manner.

MOWER AND REAPER.—A. W. Tucker, Waxahachie, Texas.—This invention relates to a new mower and reaper, which is made adjustable so that the cutting apparatus can be set to a higher or lower level, and so that it can be thrown out of gear at pleasure; an endless apron is arranged directly in rear of the cutting apparatus, to receive the cut straw or grass, which can be discharged from the apron either in continuous succession or in swaths at suitable intervals.

PUNCHING MACHINE.—Morris Selferth, Morristown, N. J.—This invention relates to a new punching machine, for perforating plates or for stamping or notching the same, and consists in the use of an automatic cleaner, by which the plate, after a hole or depression has been punched, is lifted off the lower stationary punch, so that it can be easily adjusted upon the same, for the punching of the next hole or mark, while the die is moved up by the cam of the driving shaft.

HOUSE VENTILATOR.—Robert Boyd, Evansville, Ind.—This invention relates to an improved method of ventilating dwelling houses, halls, hospitals, and public buildings, whereby the fresh air from the outside may be conveyed inside, and the vitiated or foul air escape therefrom.