

SCIENTIFIC AMERICAN

[Entered at the Post Office of New York, N. Y., as Second Class Matter.]

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY AND MANUFACTURES.

Vol. XLVI.—No. 9.
[NEW SERIES.]

NEW YORK, MARCH 4, 1882.

[\$3.20 per Annum.
[POSTAGE PREPAID.]

THE "NEW YORK WORLD" NEWSPAPER.— A REMARKABLE ESTABLISHMENT.

There is no better proof of business talent than liberal enterprise, and the judicious expenditures which our contemporary and former neighbor, the *World*, has been making upon the new building (into which it moved just in time to escape the Park Row fire) and upon new and extensive mechanical appliances, bear witness to the prosperity of that journal, and to the ability with which its interests are managed.

The *World*, for twenty years, has held a foremost place in American journalism as a scholarly, acute, and courageous newspaper; and since it passed, in 1876, under the control of its present editor, Mr. Hurlbert, it has added to its editorial brilliancy and shrewdness a notable development of its news features, and a steady improvement in its mechanical department, the full effects of which are only now beginning to be perceived by the public. Now that the work of reorganization has been completed, and the paper provided with offices and apparatus designed especially for its occupation and use, and in convenience and efficiency absolutely without parallel in America, the harvest time of the *World* has clearly begun.

The organization and administration of a great newspaper like the *World* demand the exercise of the most varied abilities. It is proverbially difficult to "run a hotel," but it is much more difficult to con-



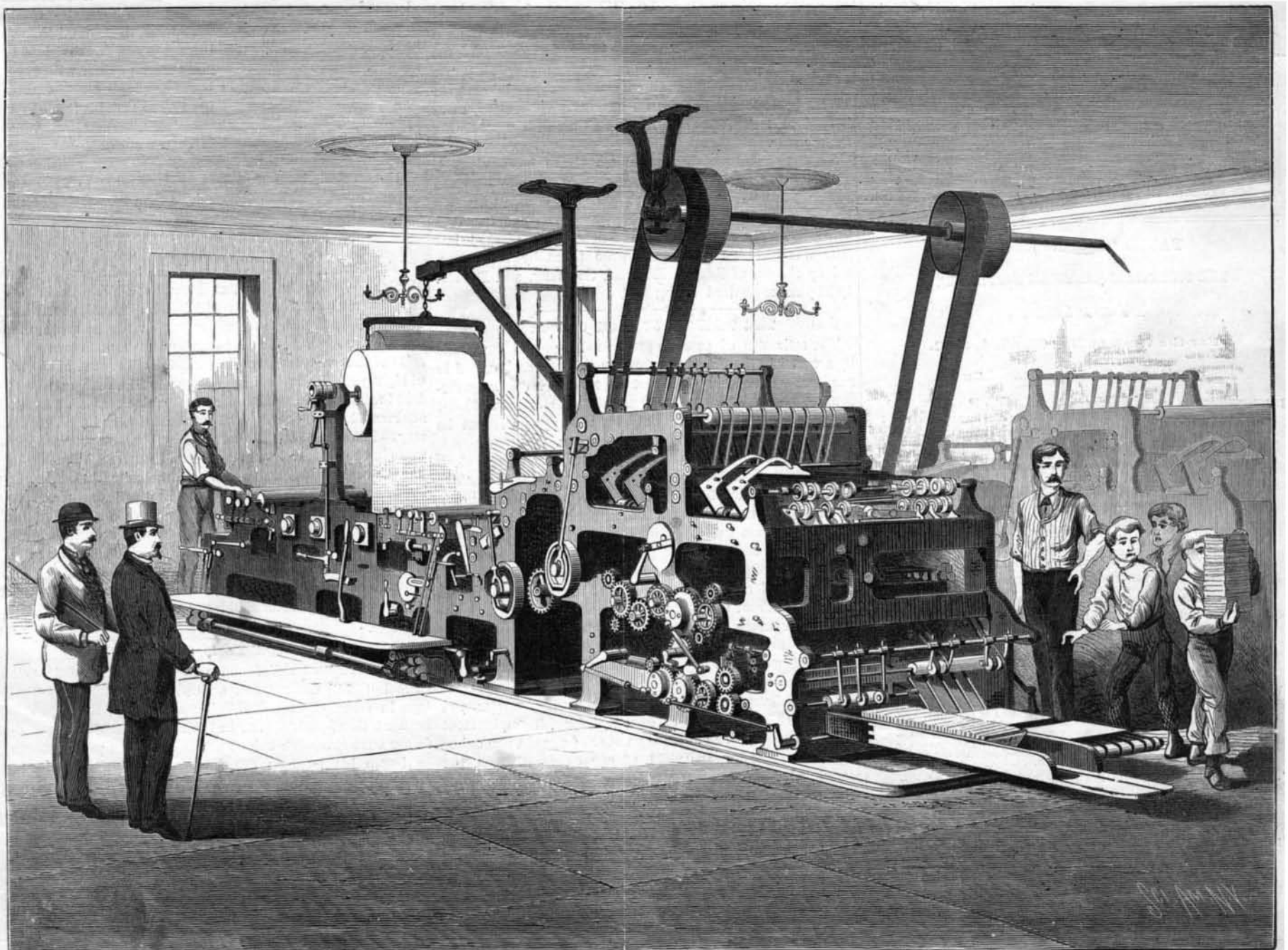
THE "NEW YORK WORLD" BUILDING, PARK ROW, N. Y.

duct a public journal, for while the latter enterprise involves as scrupulous an attention to a host of all-essential details,

it is exposed to more unexpected and severer tests. The necessity for always working at the highest pressure, of always keeping a link of speed ready yet to put forth, and the closeness with which the product of this arduous labor is scrutinized in every respect, find no parallel in any other calling. Over and above all this, a great newspaper demands the combination of a rigid administration in details with a lavish gross expenditure. The secret of success lies in the saving of time at every possible step in the preparation of the newspaper, for nowhere else is the saying so true that "time is money," and this involves at least keeping abreast of all competitors in the matter of mechanical appliances, upon which the ingenuity of the whole civilized world is being exercised without intermission, and which represent sums of money that a generation ago would have been regarded as fabulous.

An inspection of The World Building, at 31 and 32 Park Row, and of the appliances there employed in the publication of the *World*, will convince any one that our contemporary has fully grasped the problem of successful newspapering, and has brought to its solution the highest skill and the wisest liberality.

The building, erected especially for its occupation, is a handsome and massive five-story structure, with a frontage of fifty feet on Park Row
[Continued on page 130.]



PRINTING ROOM OF THE "NEW YORK WORLD" NEWSPAPER.—THE GREAT PERFECTING PRESS.

THE "NEW YORK WORLD" NEWSPAPER ESTABLISHMENT.

[Continued from first page.]

and a depth of ninety feet to Theater Alley. It occupies perhaps the very best site available for the purpose, standing as it does within a stone's throw of Broadway and directly opposite the General Post Office. The greatest pains have been taken to meet all the desiderata of ample space, solidity, light, ventilation, and security against fire, and the handsome suites of offices into which the floors, not needed for its own use, have been converted, are not likely ever to lack tenants. The whole of the basement, from Park Row back to Theater Alley, is occupied by the *World's* newspaper and job presses, stereotyping, and other apparatus. The whole of the ground floor is given up to the counting room and mailing departments, while the whole of the topmost story, with part of the third floor, accommodates the editorial staff and the large force of compositors. The arrangements for communication between the various departments of the journal and for the handling of everything, from what may be called the raw material of the paper, "copy," and forms of type, up to the finished product of the daily and weekly *World*, leave nothing to be desired that ingenuity and experience could devise or money secure, while pneumatic tubes make the offices of the telegraph company and the Associated Press practically a part of the building, and a complete telephone system links The *World* Building not only with the general system of the metropolis and its suburbs, but with its editor's residence, with its up-town branches and employment bureaus, and with its special office at the Police Headquarters.

The counting-room offers a novel and agreeable departure from the general rule which has heretofore governed the proprietors of newspaper buildings. They usually rent all the most eligible portions of their edifice, and coop themselves up in such scanty space as they cannot otherwise dispose of. The *World's* counting-room, covering the full width of the building and half of its depth, is unquestionably the most spacious, the best fitted, the most convenient, and the most attractive office of the sort, not in this country only but in the world.

The business offices of nine American newspaper offices out of ten could be put into the lobby reserved by the *World* for the public, and there is room for two more such offices behind its counters. As the counting-room is lofty and glazed to the very ceiling, it is perfect in light and ventilation, while its cool tiled floors and polished counters, with their neat glass panels and shining brazen gratings, give it an agreeable and tasteful appearance without any sacrifice of its business character. Here, as elsewhere throughout the building, practicality and solidity, combined with simple good taste, have ruled all the arrangements and made them successful. Another admirable innovation in newspapering, following upon the *World's* employment bureau and system of summer resort registers and school registers, has been introduced in the form of an Information Bureau, where are kept on file circulars, catalogues, and plans supplying all the information concerning advertisements in the journal which the advertisers themselves could supply.

In the rear of the counting-room are the wrapping and mailing departments, where the papers thrown off from the new and magnificent Hoe presses beneath, at the rate of more than 30,000 copies an hour, are finally distributed to news-dealers and carriers, to the post office sorters, or to the *World's* own

agents, whose neat light vans, drawn by strong express wagon horses, may be seen in the early morning bowling along the streets uptown or in the adjacent cities.

The editorial rooms on the topmost floor, eight in number, include the offices of the editor and his executive assistants, the editorial writers, the city department, and the staff charged with passing upon, digesting, condensing, and preparing for the printers the—literally—hundreds of columns of news which are brought nightly to the *World* from its correspondents in all parts of the earth, from its large and active corps of local reporters, from the agents of the Associated Press, and from all the other sources from which a great metropolitan journal collects the matter, only the cream of which, the public should remember, it can possibly

and the requisite machinery for damping the paper, stereotyping the plates from which the paper is printed, and so on. All the apparatus employed is of the newest and most approved description, and any one who is really interested in the practical subject of newspaper printing will be amply rewarded by a visit of inspection to this office. The rolls of paper, a league and a half in length, are wetted by steam power, which unrolls and rerolls the material through a spray of water at the rate of some fifteen miles an hour, while cranes pick up the wetted rolls, weighing half a ton each, and swing them into their places over the presses. More quickly than we could describe the process in detail, each page as it comes down from the composing room is made to yield a matrix of hardened paper, the thick sheet being laid upon the type and beaten into all the depressions

of the form. A process here, which is adopted in no other office in New York, saves from five to six minutes of time, a priceless commodity when newsdealers wait and mails do not. The matrix, after being dried under screw pressure on a steam table, is fastened into a mould, into which the stereotyping metal is poured, and the slab thus obtained—an exact reproduction of the original form—is planed and cut down so as to fit with mathematical accuracy the plate cylinders of the presses. When the sixteen plates have been adjusted, and the process is so rapid that the material can hardly be handled, the end of the five-mile ribbon of paper is drawn down into the press, and a single touch upon the lever wakens the machine to life. In something less than a quarter of a second—for each of these Hoe perfecting

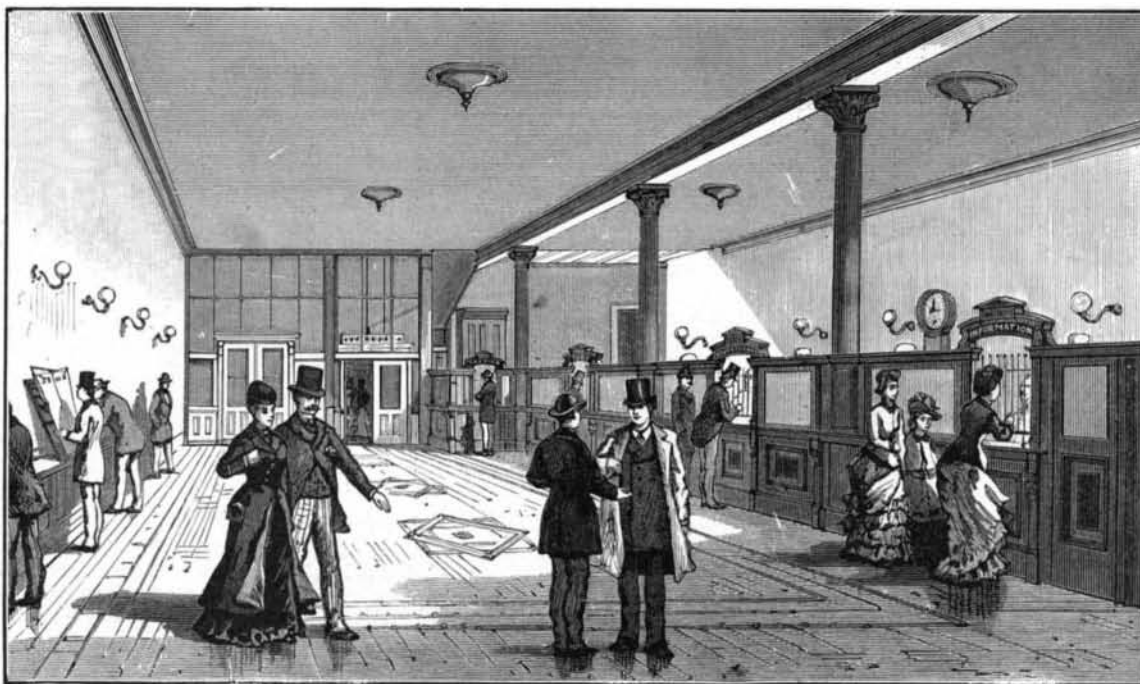
presses prints, cuts, pastes, and folds more than fifteen thousand copies of the *World* in an hour—the paper has been smoothed of all wrinkles by one roller, has received an impression of four pages from a second cylinder, and of the remaining four pages from a third, has been partly cut away from the web by a saw knife, has entered on a system of tapes more than a quarter of a mile in length, and been torn away and divided into two sections, one of which has hurried forward and upward at a greater pace, having a longer journey to pursue, and received a baptism of paste, being then overtaken by its slower follower and wedded to it, and, finally, passing under the folding knives, has been shot out on the right side folded to an eighth of its size for the mail, or flung down on the left in quarter size for the newsdealer. There is merely a long whirr, and with the speed of a railroad train the long web is swallowed, cut up, digested, and poured out in two long streams of printed *Worlds*.

The illustrations which we give of the more important machines will be found of interest even by the non-professional reader, while to the person specially interested in the subject they will be of value as representing the furthest bound of progress yet attained by American ingenuity

in this important field, and as indicating the thoroughness with which this great metropolitan newspaper has equipped itself for a career of increased prosperity and ever-widening usefulness.

Women for the Australian Colonies.

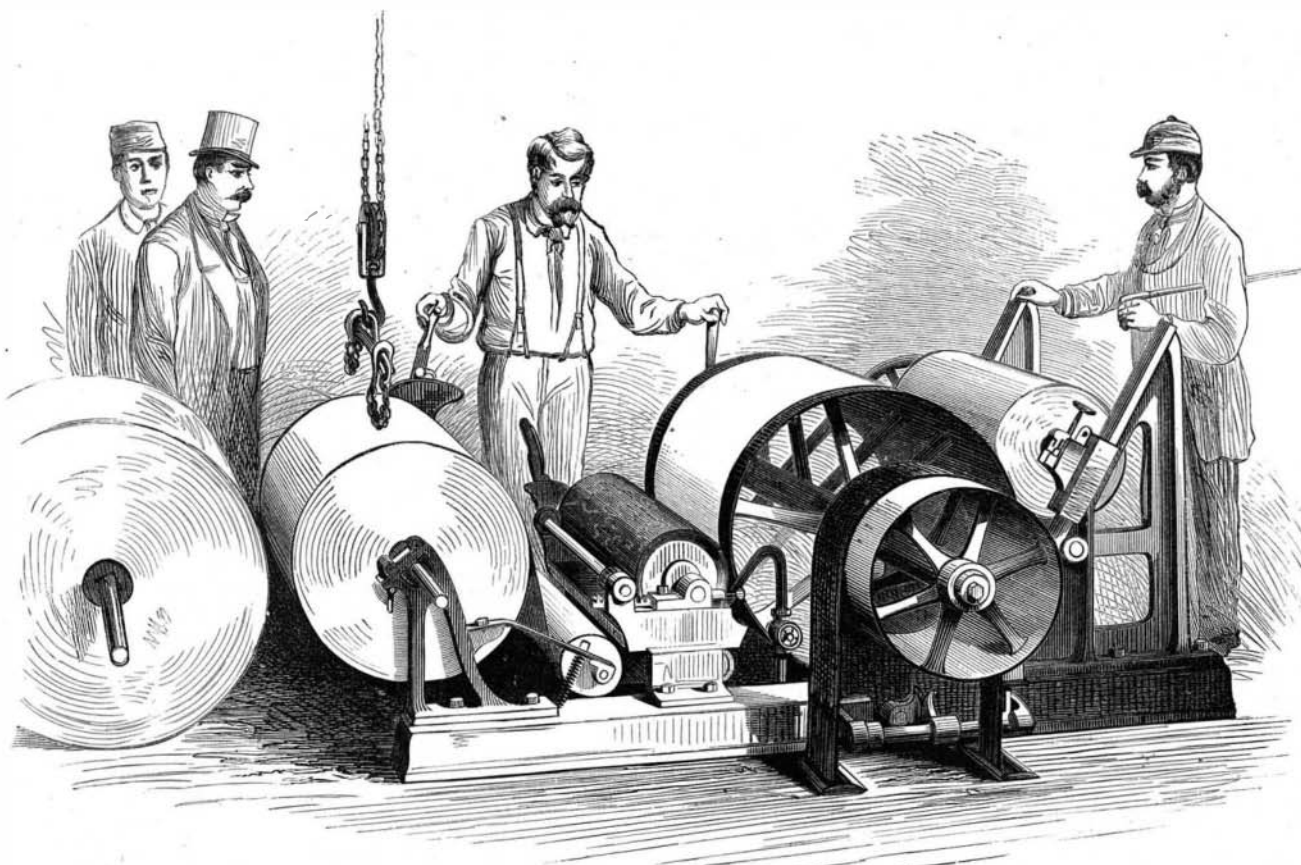
The English Women's Emigration Society are making great efforts to relieve the surfeit of English women at home by the encouragement of emigration, especially to the colonies. Agencies have been established in Australia, in Canada, in South Africa, and in Iowa. The bachelors of Queensland have offered two hundred free passages a month for comely women under thirty, and the home government has graciously consented to pay the passages of a limited number, with no stipulations about age. But



THE NEW BUSINESS OFFICE OF THE "NEW YORK WORLD."

present to its readers. The *World* has always devoted particular assiduity and intelligence to the work of editing the day's news and to furnishing appropriate comments thereon while the event is still fresh in the public mind. The advantages of this system, as compared with that of beating out cold iron a day later, are too obvious to need further comment from us. The process naturally requires keen intelligence, tireless labor, and elaborate organization; but the reward is proportionally great. True to the *World's* central principle of compactness and economy in all matters of time and space, the composing-room, a lofty and excellently equipped hall, where some fifty compositors are employed, is connected directly by an iron bridgeway with the department from which the matter to be set up is furnished. There is certainly no newspaper building in the world where there is less time wasted, or where less labor is required to accomplish a given task.

The forms, each on its table, are lowered from the composing room to the press room, which is of the full size of the building, and contains, besides the new perfecting presses which were built expressly for the *World* by Messrs. R. Hoe & Co., and which include several important improvements existing in no other machines, an equally perfect job press,



THE "NEW YORK WORLD" PAPER WETTING MACHINE.



THE "NEW YORK WORLD."—TRIMMING THE STEREOTYPES.

so diffident are English women that last year only fifty-nine accepted these offers, and now the society, through *Macmillan's Magazine*, calls for "respectable and capable" loverless but not unlovely women to go forth for love of God, love of man, or love of money, as missionaries, as philanthropists, as housekeepers, or as helps, to subdue the colonies and replenish them, lest England become a kingdom of calico. There is no chance for an immigration of men; Englishmen even go to America for wives. The good women of England, therefore, standing on the census and seeing 900,000 more petticoats than pantaloons on the island, already behold a greater catastrophe than Macaulay's New Zealander is to see—a land without husbands!

Novel Reactions of Milk.

If a little tincture of guaiacum is added to fresh milk a blue color is produced. Milk heated to 80° or upwards remains uncolored. Sour milk takes the same tint, but the reaction is prevented by the addition of mineral acids and alkalis. If a little starch paste mixed with potassium iodide is added to milk which has been mixed with old oil of turpentine, a fine blue band appears at the surface of contact and spreads rapidly. Milk freed from albuminous matter does not give this reaction. If to fresh milk there is added first acetic acid to precipitate the caseine, then some caustic potassa, and lastly a trace of a solution of copper sulphate, the violet reaction characteristic of peptone does not appear; but if the milk is allowed to stand fifteen to twenty hours before this treatment, the violet color is obtained. Mr. Arnold considers the blue color due to ozone.

The Mount Etna Observatory.

The Municipality of Catania, in Sicily, has just completed the erection upon Mount Etna of an observatory at the height of 9,671 feet above the sea level. It is believed that in the Etna observatory spectroscopic results will be attained which are impossible at all the previously existing astronomical stations throughout Europe. The site of the observatory has been so selected that, in case of an eruption from the crater, a stream of lava would be divided above the building, and would pass it without injuring it. The structure surrounds an enormous pillar, which supports the great refractor, and the telescope is covered by a movable iron dome. In addition to the telescope the building is furnished with a collection of meteorological and seismological instruments. From the summit a lovely view is to be had of the half of Sicily, Malta, the Lipari Islands, and part of Calabria.

WHITEFISH IN CALIFORNIA.—The California Fish Commissioners have been successful in propagating whitefish from Lake Michigan in Clear Lake. In 1873 about 25,000 young whitefish

were placed in the lake. Fine specimens are now being taken.

Writing on Glass.

The following formula of a good varnish for writing on glass is given by M. Crova, in the *Journal de Physique*: Ether, 500 gr.; sandarac, 30 gr.; mastic, 30 gr. Dissolve, then add benzine in small quantities, till the varnish, spread on a piece of glass, gives it the aspect of roughened glass. The varnish is used cold. To have a homogeneous layer, pour over that already formed some oil of petroleum, let it evaporate a little, then rub in all directions with cambric cloth till all is quite dry. With ink or lead pencil, lines can be produced on this surface as fine as may be desired. Thus a drawing may be prepared in a few minutes and immediately projected.

Shrimp Canning.

Shrimp canning has recently been added to the industries of New Orleans. One new establishment employs 150 boys and girls and from 20 to 30 skilled workmen. Already the output is 10,000 cans a day, and it is expected that the product will soon be doubled. The shrimps are cooked and canned by a new process. It is intended to undertake also the canning of oysters, which are abundant along the Gulf coast, and, during the proper seasons, the figs

and other fruits of the South.

Singular Explosion of Oxygen.

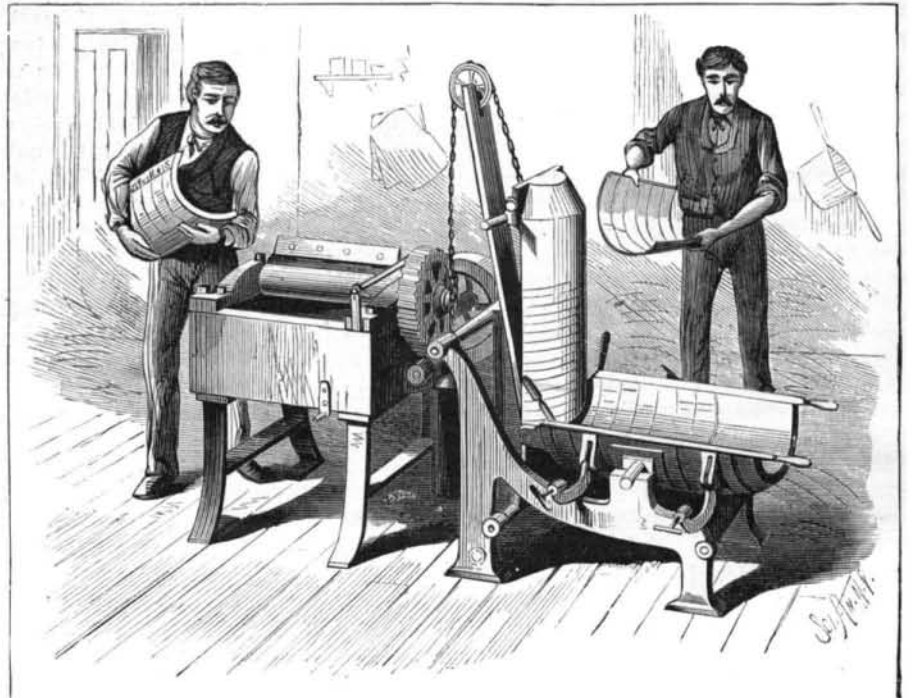
M. Sébère, of St Brienne, has been in the habit of storing his oxygen in a large gas holder of galvanized iron holding a hundred liters and sunk in water. After being about half full for several weeks he was about to make use of it by carrying a jet of the gas to a flame, with the result of the whole violently exploding. An investigation proved that no carelessness was at the bottom of the matter, the explanation being of a most simple nature, and one that theory would have predicted. A galvanic action had been set up between the iron and the zinc, and hydrogen had been liberated, an explosive mixture of the most powerful character being thus manufactured in the middle of the laboratory. M. Sébère's arm was broken, the place was deluged with water, and considerable further damage resulted. In order to prevent a similar accident, for the future M. Sébère will always keep the interior of his gas-holder well varnished.

RECENT INVENTIONS.

In the ordinary method of laying out ship timbers the hull is first outlined by strips of wood, named 'ribbands,' and then moulds or patterns are made, which are strips of board made to conform in the curvature of their edges to the curvature of the sides of the hull, and which moulds are then laid upon the timber, and the ribs, knees, and frame pieces cut in accordance with such patterns. In this method of shaping the timbers errors in measurement are likely to be exaggerated, and a great amount of time, labor, and material is expended in the construction of the moulds. Mr. Charles E. Osenburg, of Baltimore, Md., has patented a device which he calls a "conformator," which permits the work to be accurately and quickly accomplished, and dispenses entirely with the use of moulds and their attendant expense. It consists in two bars held apart at their ends by filling blocks and tie-bolts, which main bars have two independent series of adjustable arms crossing the same, which arms may be adjusted so that their outer edges conform to any shape of a ship's side, and which shape, when fixed in the conformator by means of set screws, may, together with the bevels, be directly and exactly transferred to the timber to be cut.

An improved machine for grounding wall paper has been patented by Messrs. Ira Robbins, of Camden, N. J., and David Heston, of Philadelphia, Pa. It relates to improvements in machines for grounding wall paper before printing.

An improvement in oil pumps has been patented by Mr. Alfred J. Lewis, of Barnhart's Mills, Pa. The object of this invention is to provide a vacuum pump for oil wells which shall be adapted for agitating the oil, to keep all passages



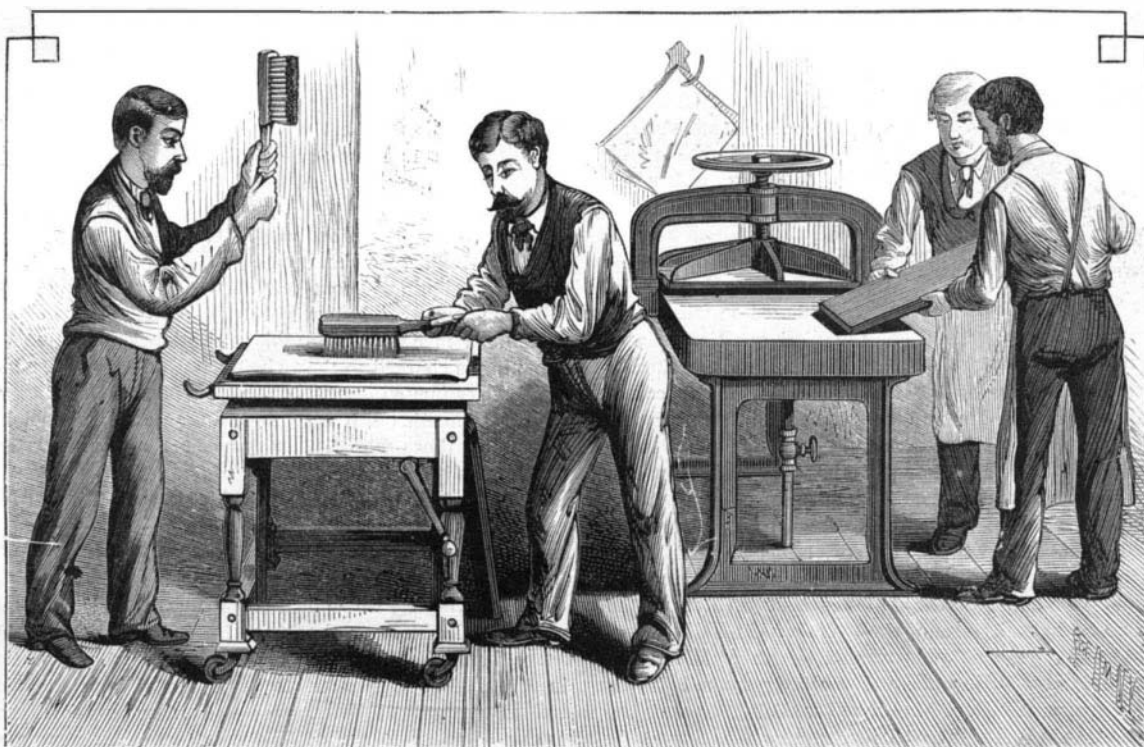
THE "NEW YORK WORLD" STEREOTYPE PLANER.

feeding or supplying the pump free from the accumulation of sediment, paraffine, salt, or other obstructions, and to dispense with the ordinary inlet valves, which are liable to get out of order.

Mr. John B. Craig, of St. Louis, Mo., has patented an improvement in police nippers. This invention is an improvement in the class of nippers which are employed for seizing and holding the wrists or arms of prisoners, and curved jaws are so connected that the movement of one of them in opening or closing it will cause a like movement of the other. The jaws are S-shaped, or constructed with reversed curves; their upper ends are connected by means of toggle levers, which serve to open and close the jaw and to hold them closed when in a certain position.

Mr. Seth H. Fountain, of Amite City, La., has patented an improvement in mills such as are usually turned by hand for grinding coffee, spices, and similar things. It requires less power to operate it than those of ordinary construction, and there is no loss of the material passing through it.

Mr. Wm. E. Brown, of Irving, Kan., has patented an improvement in gutter hangers. It consists of a wire rod gutter hanger secured at one end to the roof of a build-



MAKING THE PAPER MATRICES.—"NEW YORK WORLD."