

## THE FAIR OF THE AMERICAN INSTITUTE.

This institution intends holding its annual fair in the Academy of Music, on Irving Place, New York, commencing Sept. 2. Exhibitors can present their goods for admission at any time previous to the 1st of September. We have seen a statement to the effect that the committee had decided not to exhibit any of the machinery in motion this year. The assertion may not be correct, but if it is, such a policy as the one indicated does not augur very much for the enterprise of the Institute and its interest in the welfare of the manufacturing portion of the community. The mere external inspection of a machine affords a very slight insight into its capacity, and the fair will lose half of its attractiveness if the ingenious tools and engines are inert and silent. People go to a fair to see what machinery can accomplish, not to look at the paint and varnish on it; a view of the latter can be had at any time in the manufacturers' warerooms. We do not know what obstacle there is in the way to prevent the committee from exhibiting machines in motion, unless it may be the difficulty of employing steam as a motive power in a convenient part of the city, and we earnestly hope that, before the fall arrives, they will reverse their decision and have machinery exhibited in operation. The long machinery hall has heretofore been one of the most attractive features of the fair, and to see all the engines busy in their revolutions, the tools performing their functions, the saws buzzing and pumps working, gives an air of earnestness and vitality to what would otherwise be a very tame and spiritless exhibition. Let us have the machinery in motion, by all means.

**ECHOING FLOORS.**—As houses are now built, floors are apt to be very noisy annoyances. The timbers are so strained up that the floors become resonant like a drum. Now this can be easily remedied at a trifling expense. After laying the under floor, nail down some sawed laths, directly over and across the sleepers. These will show where to lay the upper floor. Now make a mortar of lime and sand, in which the latter ingredient may be in excess. It may be made thin. Pour it on to the floor and spread it just as thick as the laths, and let it dry before laying the second floor. Nail down the upper floor through the laths, and it will seem to you like walking on a brick pavement.

**HINTS TO CARPENTERS.**—When you start in business, make up your mind not to *chisel* or be *chiseled*. Be liberal to those you employ; it will be *plain* to all that you are no *screw-driver*, and as each day comes around, you will find yourself all *square* with everybody. Make it a *rule* that any man going into the workshop should scrape his boots. Should the *rule* be broken, impose a fine of sixpence, which may be called a *tin tax*. Try all in your power to get your men out of any *vice* they may get into; for instance, if you saw them *screwed*, you, of course, would conclude they had been to an ale-house, and warn them that drinking porter to excess in the morning will surely bring them to an early *bier*.

**"WHISTLING DICK."**—A correspondent, writing from Vicksburgh, says the rebels have a gun which dominates the river, and is a pestilent bother to us. They call him "Whistling Dick." No gunboat has any business where this terrible gun can get a shot at it. It shoots a ball two and one-half feet long, steel pointed, weighing two hundred and fifty pounds, can tear through our best iron-clads, and is thought to be the best gun of the war. The writer says it will be some time before Vicksburgh is taken.

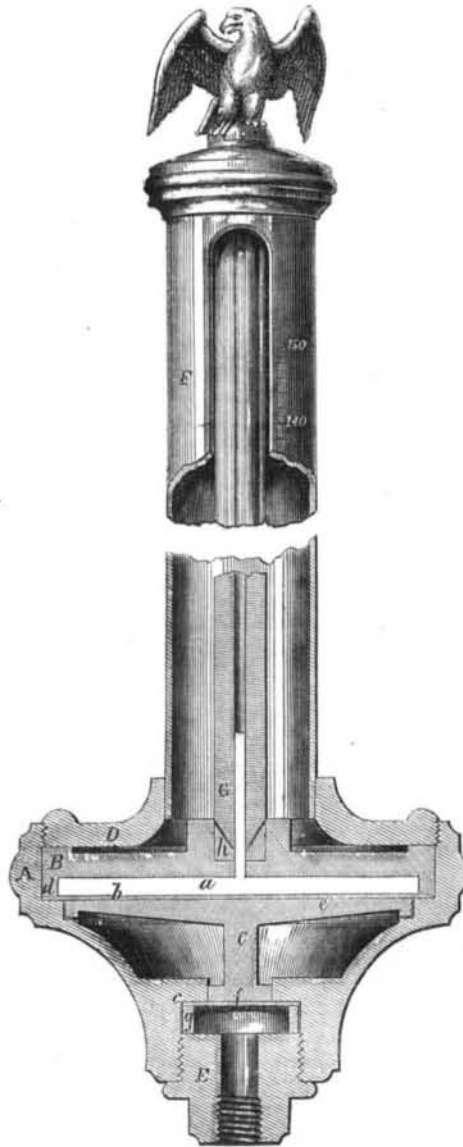
[Where is Mr. Lyman and his long accelerating rifle?—Eds.]

A late Liverpool paper says that, however lucrative the fitting-out of blockade-runners was in the early part of the rebellion, it has now become not only hazardous but really dangerous to capital as well as to reputation. Bankruptcy is already making sad inroads into the financial affairs of English merchants who have invested in this species of speculation.

AMONG a recent lot of mail matter for the Army of the Potomac was a roll of sole leather weighing probably 40 pounds, for a private in one of the batteries, his own use, with a one-cent stamp only upon it.

## SHAW'S PATENT STEAM GAGE.

The importance of correctly registering the actual pressure of steam in boilers is of the utmost consequence, pecuniarily and physically. By keeping the steam at a stated pressure fuel is saved, and the wear and tear of the boiler is much less where the work is regular and even than where rapid firing takes place to run the steam up, or when cold air is thrown into the furnace by leaving the doors open to check too rapid ebullition. Steam gages are too often wanting in correctness, and do not indicate the same pressure



at all times under similar circumstances, and are, therefore, unreliable for any practical purpose. We illustrate herewith a steam gage on an improved plan, which possesses decided advantages over many in use; the lower part of the gage is cut away to show its internal construction:—The brass cup, A, containing an iron disk, B, is recessed out to form a mercury chamber, a. There is also a plunger, C, and the gum diaphragm, b and c. The cap, D, is screwed into the cup, A, and causes the iron disk to impinge on the diaphragms, b, making air-tight joints at the point of contact, d. The plunger is a little smaller on its upper surface, e, than the mercury chamber, while its lower face, f, is of still less area. The plug, E, is screwed into the cup, A, and has an orifice for the insertion of the steam pipe; it presses against the brass ring, g, which in turn makes a tight joint through the diaphragm, c, on the bottom of the plunger. The brass case, F, incloses the mercury tube, G, whose orifice is directly over that in the disk, thus opening communication with the mercury chamber below. The gum ring, h, is placed in a recess in the iron disk and also makes an air-tight joint against the bottom of the tube. These constitute the most noticeable details of this invention. The principle of its operation, says the inventor, is the admission of pressure upon pistons of a different area, giving the mercurial column the advantage of the largest, and by this means employing short columns of quicksilver to balance high pressures of steam. It measures the pressure of steam upon the theory that the column of mercury in the gage ex-

actly balances the pressure in the boiler without the intervention of any other medium or agent. The movement of the plunger is not more than the one-hundredth part of an inch, and this is sufficient to force the mercury up to the top of the tube so that the friction of the rubber diaphragm is not of any moment. Another favorable feature of this gage is that the glass tube is open above to atmospheric pressure, thus avoiding the evil of compressed air—allowance for which has always to be made in graduating gages with glass tubes. A sufficient space is allowed in the mercury reservoir so that the registry is not affected by any change of temperature. This gage is of compact form and is sold at a low price. The invention was patented on Feb. 24, 1863, by Thomas Shaw and assigned to Shaw & Justice, manufacturers, of whom further information can be had by addressing them at 42 Cliff street, New York, or at 14 North Fifth street, Philadelphia.

# PROSPECTUS

OF THE

## SCIENTIFIC AMERICAN.

THE BEST MECHANICAL PAPER IN THE WORLD.

NINETEENTH YEAR!

VOLUME IX.—NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN beg to announce that on the fourth day of July, 1863, a new volume commenced, and it will continue to be the aim of the publishers to render the contents of each successive number more attractive and useful than any of its predecessors.

The SCIENTIFIC AMERICAN is devoted to the interests of Popular Science, the Mechanic Arts, Manufactures, Inventions, Agriculture, Commerce, and the Industrial pursuits generally, and is valuable and instructive not only in the Workshop and Manufactory, but also in the Household, the Library and the Reading Room.

The SCIENTIFIC AMERICAN has the reputation, at home and abroad, of being the best weekly journal devoted to mechanical and industrial pursuits now published; and the proprietors are determined to keep up the reputation they have earned during the eighteen years they have been connected with its publication.

To the Mechanic and Manufacturer!

No person engaged in any of the mechanical pursuits should think of doing without the SCIENTIFIC AMERICAN. It costs but six cents per week; every number contains from six to ten engravings of new machines and inventions which cannot be found in any other publication. It is an established rule of the publishers to insert none but original engravings, and those of the first class in the art, drawn and engraved by experienced artists, under their own supervision, expressly for this paper.

Chemists, Architects, Millwrights and Farmers!

The SCIENTIFIC AMERICAN will be found a most useful journal to them. All the new discoveries in the science of chemistry are given in its columns, and the interests of the architect and carpenter are not overlooked; all the new inventions and discoveries appertaining to those pursuits being published from week to week. Useful and practical information pertaining to the interests of millwrights and mill-owners will be found published in the SCIENTIFIC AMERICAN, which information they cannot possibly obtain from any other source. Subjects in which planters and farmers are interested will be found discussed in the SCIENTIFIC AMERICAN; most of the improvements in agricultural implements being illustrated in its columns.

To the Inventor!

The SCIENTIFIC AMERICAN is indispensable to every inventor, as it not only contains illustrated descriptions of nearly all the best inventions as they come, but each number contains an Official List of the Claims of all the Patents issued from the United States Patent Office during the week previous; thus giving a correct history of the progress of inventions in this country. We are also receiving, every week, the best scientific journals of Great Britain, France and Germany; thus placing in our possession all that is transpiring in mechanical science and art in those old countries. We shall continue to transfer to our columns copious extracts from those journals of whatever we may deem of interest to our readers.

TERMS.

To mail subscribers:—Three Dollars a Year, or One Dollar for six months. One Dollar and Fifty Cents pay for one complete volume of 416 pages; two volumes comprise one year. A new volume commenced on the fourth of July, 1863.

CLUB RATES.

Five Copies, for Six Months.....	\$6
Ten Copies, for Six Months.....	12
Ten Copies, for Twelve Months.....	23
Fifteen Copies, for Twelve Months.....	34
Twenty Copies, for Twelve Months.....	40

For all clubs of Twenty and over the yearly subscription is only \$2 00. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Western and Canadian money or Post-office stamps taken at par for subscriptions. Canadian subscribers will please to remit 25 cent extra on each year's subscription to pre-pay postage.

MUNN & CO., Publishers,  
37 Park Row, New York.

FROM THE STEAM PRESS OF JOHN A. GRAY.