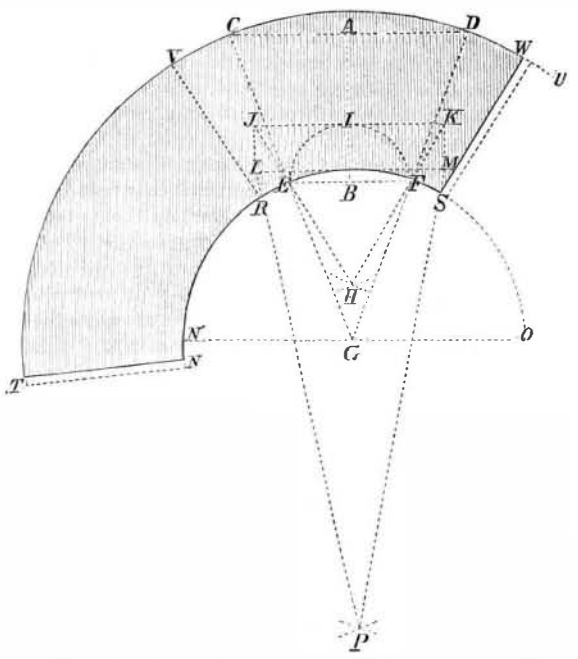
IMPROVED METHOD OF DRAWING PATTERNS FOR FLARING VESSELS OF SHEET METAL.

The invention illustrated by the accompanying engraving, is a new and convenient method of laying out on sheet metal the necessary lines by which to cut the metal so that it may be bent into the form of truncated cones of various degrees of inclination. The method pursued is as follows:—The hight of the cone is first measured on a line, A B, the extremities of which meet at right angles the lines, C D and E F.



The line, C D, is equal in length to the long, and the line, E F, to the short diameter of the truncated cone. Both the last named lines are bisected by A B. Lines are next drawn through the points, C E and D F, so that the point, G, is found. An equilateral triangle, E F H, is erected on the line, E F, and a semicircle, E I F, described from the center, B. The sides, H F and H E, of the triangle, are extended until they meet a tangent, J I K, of the circle, E I F, the said tangent being at right angles to the line, A B. The length, J K, thus found, is next, by perpendiculars, J L and K M, transferred to the tangent, L M, of a circle, N O, which is described from the point, G, and radius, G E; said tangent, L M, being parallel to J K. On the diameter, N O, is next erected an equilateral triangle, N O P, from the point, P, of which are drawn lines to the points, L and M, cutting the circle, N O, at R and S. From the point, G, and radius, G E, is next described the outer circle, T U. The radii, R V and S W, of this circle, through the points, R and S, produce between the two circles, N O and T U, just one half the designed length of sheet.

By adding another length as far as N and T, the entire sheet, N S W T, is produced, to the end of which sufficient material for overlapping may be added.

Patented, July 4, 1871, by Orlando B. Vandenburg, of Findlay, Ohio, through the Scientific American Patent Agency. For further information address the patentee.

Tommasi's Flux Motor.

We briefly noticed this invention last week. In our present issue, we have placed an illustration of it before our readers.

In the engraving, A is the level of average low water during the spring tides; B the level of the point which serves as a base of the unit of hight; C the level of average high water during the springs; D the pipe of communication between the reservoir and the sea; E the reservoir; F the lower compartment; G the upper compartment; H the tube of communication between the upper compartment and the sea; I the tube of communication between the lower compartment and the feeding tube of the motor apparatus; K the tube of communication between the upper compartment and the discharge tube of the same apparatus; L the factory; M the horizontal division; N the reserve compartment; O the cylinder, with piston of motor apparatus; P the pump for compressing the air; Q the valve; R the cocks, and S the shore. The acting force being at one of the levels above A, and the generator of force at F and G, the engine is at L, above a compartment of reserved force, N; and the force operates, and the movement is transmitted, as will be now explained. Let the sea be at the level, A; there being the junction by the pipe, D, there will, of course, be a corresponding level in the lower compartment of the reservoir, as shown in the illustration. There is a pipe of communication between the two compartments of the reservoir, as shown, the lower end of the pipe being submerged; and there are pipes for the escape of air from the compartments, the upper ends of the latter pipes being provided with stop cocks. As the tide rises from A to B, the air contained in the compartment, F, having no issue by the pipe, H, of which the orifice is submerged, and none by the pipe, I, of which the stopcock will have been closed, is compressed proportionately to the weight of a column of water of the sea.

"By putting, then," according to the inventor, this "compressed air into communication with the feeding pipe of a machine similar to the steam engine, and constructed in the proportions which would have due relation with the pressnre and with the quantity of work desired, the machine will set itself in motion, and will continue to work up to the termination of the tidal flow—that is to say, during about three hours." During the time the water freely penetrates by the pipe, H, into the compartment, G—the pipe, K, being at the time in communication with the external air, it fills the compartment, G up to a level corresponding with the level of the sea. But the cock (one of those lettered R) which is on the pipe, K, is closed, whereby the escape of the water into the compartment, G, is prevented. Then as the sea descends to the level, B, the water suspended, as it were, in the compartment, G, rarefies by the effect of its weight the air between it and the machine, and it results that on placing the feeding pipe of the machine in communication with the external air, and its discharging tube in communication with the tube, K, the weight of the exterior air upon the piston of the machine will be more or less considerable, according to the degree of rarefaction of the air in the tube, K.

This rarefaction being proportionate to the weight represented by the hight of the water in the compartment, G, and this hight being the same as that of the water which a short time before exerted its pressure (at the rising tide), the pressure of the exterior air on the piston, and consequently the degree of work which results from it, will be the same as that of the compressed air, and will continue so to the end of the ebb, or reflux—that is, for about three hours. By the means described there will be about three hours of work and three hours of rest. For the branches of industry to which such intermittent work would not be adapted a machine would be constructed with two cylinders at right angles, to which would be added a certain number of pumps worked directly by its piston motors, O and P; and the tides occurring during the night, and on Sundays, would be turned to account and made to compress, by means of those pumps, the largest possible quantity of air, and to force it into the reserve compartment, N, which would be, in fact, the underground story of the engine house or factory. On the necessity arising for motive power from the machine during the three hours, a cylinder and its pumps would be taken from the machine and placed in communication with the reserve; and the compressed air there would furnish the power.

Improved Liquid for Galvanic Battery.

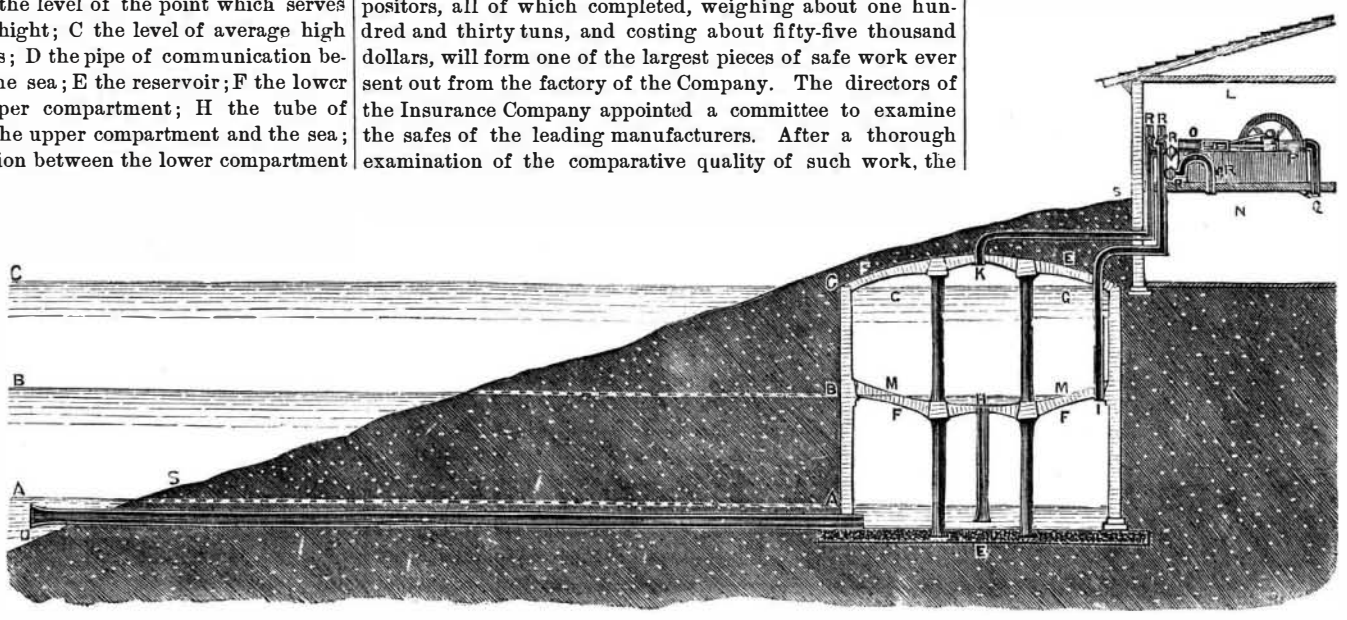
Mr. Victor Barjon's new battery liquid, mentioned by us in describing Mr. Emile Prevost's battery last week, is made by mixing a solution of bichromate of potash with a little lime, and with sulphuric acid. He puts two lbs. pounds of bichromate of potash into a gallon of boiling water, and lets the solution cool down to 68°, and adds two ounces of lime. After stirring, he adds sulphuric acid until the gravity reaches 35° Beaumé. Then, having stirred the whole, he lets it stand for twenty-four hours, when it is ready for use.

The American Steam Safe Company.

The Superintendent of the Company, George L. Damon, on Thursday last contracted with the Pennsylvania Company for Insurance on Lives and Granting Annuities, of Philadelphia, to erect in the banking room of their new building on Chestnut street, a "welded iron and steel" vault of great size with two thousand separate boxes, for the use of special depositors, all of which completed, weighing about one hundred and thirty tuns, and costing about fifty-five thousand dollars, will form one of the largest pieces of safe work ever sent out from the factory of the Company. The directors of the Insurance Company appointed a committee to examine the safes of the leading manufacturers. After a thorough examination of the comparative quality of such work, the Committee decided to contract with the American Steam Safe Company. This Company also furnished the Kensington Bank of Philadelphia with one of their first class burglar proof safes shortly after the bank was robbed.—[*Boston Post*, Aug. 4.

The warehouse of the American Steam Safe Company in this city, is No. 300 Broadway.

LUBRICATING oil has at last rewarded some persevering well borers at Terre Haute, Ind. The auger was driven 1,636 feet into the earth.



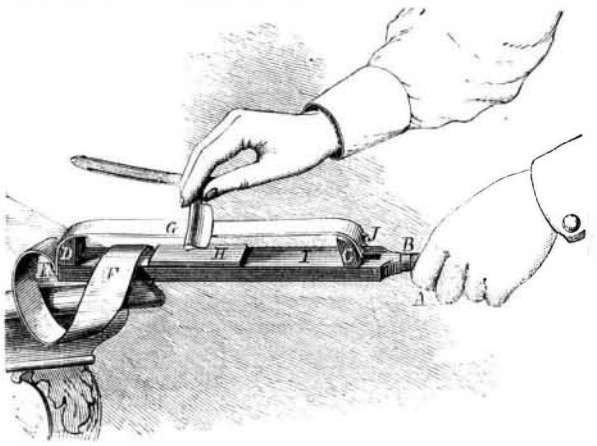
TOMMASI'S NEW FLUX MOTOR.

ADJUSTABLE TENSION RAZOR STROP.

The device for stropping and whetting razors, as represented in the annexed engraving, is the invention of Rev. Wm. M. Green, of Gallatin, Tenn., and was patented Aug. 1, 1871.

It is said that the idea of this invention was suggested by the piece of common leather so generally used in the barber shops of this country, and heretofore esteemed the very best strop for that purpose.

In Mr. Green's strop, two or more leathers, F and G, of varied qualities, may be used; these are attached to the sliding standard, C, by two eyelet pins, J, and to the stationary standard, D, by a thumb screw, E. The standards are of metal, and connect with and move in the frame, I, as shown. In the handle, A, is an adjustable screw, B, by turning which the tension of the leather is regulated. The leathers not in use may be fastened to the under part of the frame; on the face of this frame a hone, H, is secured. The advantages of these novel features are obvious.



For information as to sale of State rights, etc., address Messrs. White & Kirby, Gallatin, Tenn., sole agents and manufacturers.

Purification of Crude Fats of Commerce.

The crude fats contain many principles calculated to promote fermentation and decomposition. In place of purification by treatment with sulphuric, bichromate of potassa, chlorine, fusion, boiling, filtering etc. M. J. Castlehaz proposes as a more economical method, the following: 100 parts of crude fat are taken, and to these are added 100 parts of boiling water. Four parts of crystallized carbonate of soda dissolved in 20 parts of water, are then added, and the whole heated to a temperature above the fusion point of the fat, and agitated to complete emulsion. Then 400 parts of water are added, the agitation being continued. The mixture is then allowed to stand, and the water siphoned off from below the layer of fat, which is again treated with 100 parts of water and treat as before, washing with four hundred parts of boiling water. At least two or three treatments of this kind should be applied, the second time with from 4 to 2 per cent, the third time with from 3 to 2 per cent of carbonate of soda.

To wash out the soda, water containing 1 per cent. of hydrochloric acid may be used, or pure water. The use of wated containing lime salts should be avoided in this process, as far as possible.

COLONEL AIKMAN, of the British army, recently exhibited at the United Service Institution, a newly designed rifle, intended to facilitate practice where a long range is not accessible. We give the Colonel's own description: I take an old musket and cut away the under part of the barrel. I then place a small barrel inside it, and bolt the breech of the same with the metal abutment in the stock; the breech of the outer barrel is cut away to admit of the smaller one taking its place. The inner barrel radiates from the breech, and is elevated or depressed by a screw. The principle of the invention is that, while the outer barrel is elevated to strike the target at the line of resistance, the inner barrel, or "tester," is kept point blank to the target, which is diminished in size according to the space available for practice, so as to present at the short distance the apparent size of the large target at the long range.

IN the London Central Telegraph Station, two lathes cut the paper for the Wheatstone and Morse printing instruments. These lathes, working nine hours daily, cut 750 coils of Wheatstone and 3,390 of Morse ribbon per week; the Central station alone uses 150 coils of Wheatstone and 1,390 of Morse ribbon per week. These two lathes can supply the whole kingdom.