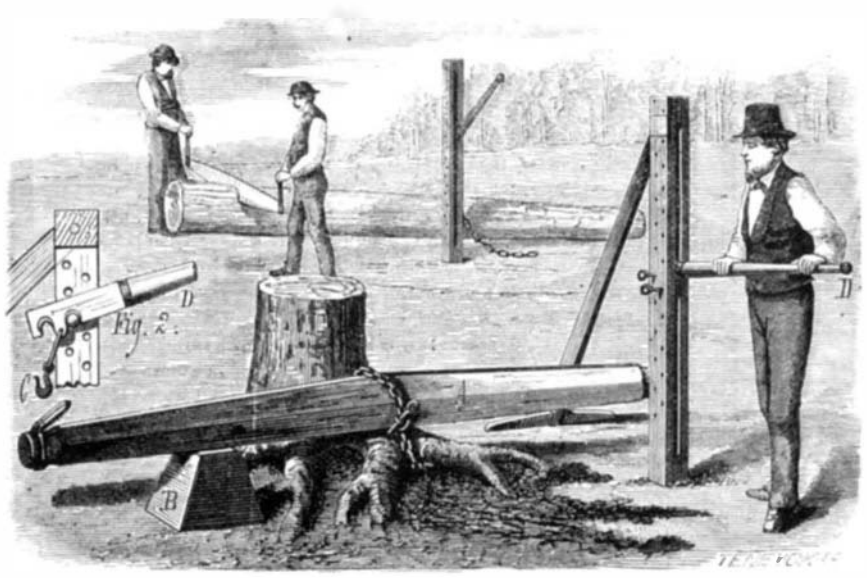
IMPROVED LEVER POWER.

Farmers and others who contemplate clearing land during the coming spring, or before the cold weather permanently sets in, will find in the apparatus here illustrated a simple lever power well adapted for pulling stumps. It is also well suited for raising heavy weights of any description, and is easily operated by oue person.

A is the main lever which is attached to the stump or weight as shown. Beneath it is placed the adjustable fulcrum, B, and one end is provided with a link in which the hook, C, Fig. 2 of a hand lever, D, is inserted. The front end of said hand lever is provided with recesses, which are strengthened by side shoulders to rest and turn easily on the cross pin adjusted in the upright standard or post. The hand lever may be placed at different hights, as desired, by inserting the cross pin through higher or lower holes in the standard. The latter is made of two posts that are connected at top and bottom, and braced by side braces, as shown. By bearing down on the hand lever, the main lever is caused to raise the weight. The hook, it will be observed, is pivoted to the hand lever below the recesses for the pins, so that effective work may be accomplished whether the standard is in an inclined or upright position. When used as a lifting machine, single or compound power may be used at option. We are informed that the apparatus has been practically tested with success.

Patented through the Scientific American Patent Agency, September 28, 1875. Further information may be obtained by addressing the inventor, Mr. William F. Hale, Jamestown, N. Y.

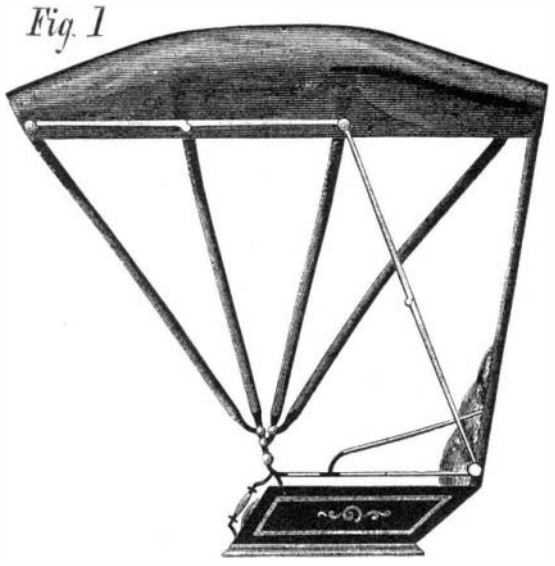


HALE'S IMPROVED LEVER POWER.

IMPROVED TUBULAR BOW SOCKET.

We illustrate in the engravings given herewith two buggy tops—one (Fig. 1) supported by old-fashioned wooden bows covered with leather; the other (Fig. 2) sustained by the new metallic tubular bow sockets, which are illustrated in detail in Fig. 3. The contrast, showing as it does the superiority of the new invention in point of lightness and grace of appearance, is striking. Tho artist has depicted the rear bow in Fig. 1, as bent or sprung rearward, a condition which often occurs and terminates in a break, owing to such bow being forced to sustain a large portion of the strain due to the weight, etc., of the top, when the wood of which it is composed is inadequate to resist the same That this difficulty cannot well occur with the new bow will be clearly understood from the description of its construction.

Fig. 1



WOODEN BOW SOCKET.

The sockets consist of long tubes made of a tough quality of sheet iron which extend up on the side of the top, a little higher than the side curtains. In the lower ends of these tubes are welded pieces of the best Norway iron fitted in a neat and workmanlike manner. In the back tube there is also welded a thin strip of steel, A, in the section, Fig. 3, which is tapered similar to the bow and extends upward for about twenty-four inches. The object of this is to strengthen the bow and prevent it becoming marred, bent, or dented when it strikes on the rest or prop when turned down, the edge of the steel receiving the full force of a blow.

The tubes are then nicely japanned and finished so as to resemble the finest patent leather. This work is done with great care so that the japan will not crack off. The sockets are then filled with hard wood, B, Fig. 3, turned to fit and continued to within 8 inches of the top, leaving room enough to make a strong finish.

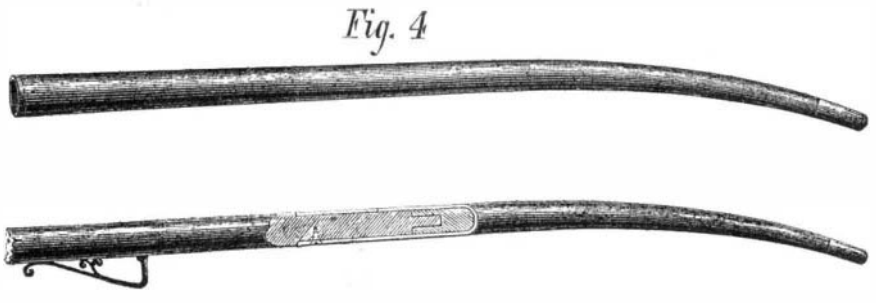
Mr. J. N. Topliff, the inventor, has exhibited several of these bows to us, which he quite severely tested in our presence. They stood the test of a man exerting his full strength on a single bow across his knee, without breaking; nor does a sharp hammering on the exterior of the material appear to have any injurious effect. The bows are lighter in weight than the old leather-covered devices.

In our fourth figure is represented the application of the same invention to shafts In lieu of a shaft made entirely of wood, a tip formed of a metal socket with a steel diaphragm and wood filling is added. The ends of shafts are very frequently broken without any injury to the remaining portion, in which case a tip, made as described and shown in Fig. 4, could easily be attached. The iron socket as seen embraces the stump for some distance, and then the latter is dovetailed into the filling of the socket, rendering the shaft complete and strong.

The invention is one of much practical utility; and it has already, we are informed, been adopted by many of the first carriage makers in the country, among them Messrs. Brewster & Co., of Broome street, in this city. It is the subject of several patents, which cover the various improvements as the same have suggested themselves and been added by the inventor.

For further information address the manufacturers, Messrs Topliff & Ely, Elyria, Ohio.

Fig. 4

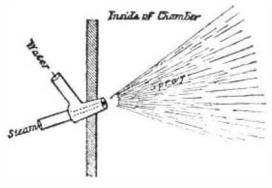


TOPLIFF'S TUBULAR BOW SHAFTS.

Production of Sulphuric Acid.

Mr. Hermann Sprengel's application of atomized liquids in operations where a liquid is made to act as an absorbent of gas possesses great advantages. The method has been applied with success to the purification of coal gas, and to the condensation of hydrochloric acid, and by its use great improvements in the production of sulphuric acid have been effected. It is well known that sulphuric acid as contained in the chambers contains about 50 per cent of water, and that all this water was once steam, and was taken as such from the steam boiler. Before being condensed in the chambers this steam occupied a certain space, and moreover helped (on account of its heat) to expand the bulk of the other gases used in the formation of sulphuric acid. In winter time the yield of acid is better, and the consumption of niter less, than in summer time; and the greater the chamber space (that is, the smaller the volume of gas allowed to pass the chambers in a certain time) the less will be the consumption of niter (in proportion to the acid produced) and the easier will be the conversion of all sulphurous into sulphuric acid.

Hence, as the lowering of the temperature of a gas necessarily implies the shrinking of its volume, both of which favor the process of sulphuric acid making, Mr. Sprengel commenced to manufacture sulphuric acid by means of what has been called pulverized or atomized water or spray, which he injects into the chambers as a substitute for steam. This effects (1) a saving of fuel equal to the amount which is required to convert this pulverized water into steam, and (2) a cooling of the chambers equal to the loss of the amount of heat which would have been generated by the combustion of the coal thus saved.



The spray is produced at present by means of "some" steam, which is made to escape from a platinum jet, under a pressure of about two atmospheres, into the center of a flow of water, as shown in the illustration. Twenty pounds of steam will thus convert 80 pounds of water into a cloud-like mist, the actual weight of which, issuing from a jet of the above size, amounts to about ½ tun in twenty-four hours. These jets are placed in the sides of the chambers about 40 feet apart. They are supplied with water from the tank above, while the steam is taken from the steam pipes already existing between the chambers, or, better, from smaller ones put in their places.

At the works of the Lawes Chemical Manure Company, the saving in coal amounts to about two thirds of the quantity formerly burned. It is generally believed that a moderate temperature favors the formation of sulphuric acid, but Mr Sprengel has found that, the stronger the frost, the better was the condition and the yield of the chambers.

The spray acid has been produced with 6½ per cent less pyrites and with 14¾ per cent less niter than the steam acid which was made from the same material during the two years preceding the application of the spray. These numbers, moreover, refer to the yield of chambers, without Gay-Lussac and Glover towers.

In factories where these towers are in use the saving will be probably one third less, at least as far as steam is concerned. But as it is believed that a large proportion of nitrous acid becomes destroyed in the Glover tower by the heat of the acid from the kilns (that is, broken up into oxygen and nitrogen), Mr. Sprengel thinks that, for the sake of coolness, this acid is better distributed in the chambers as spray. The Glover tower, of course, will still serve as an admirable instrument for concentrating chamber acid.

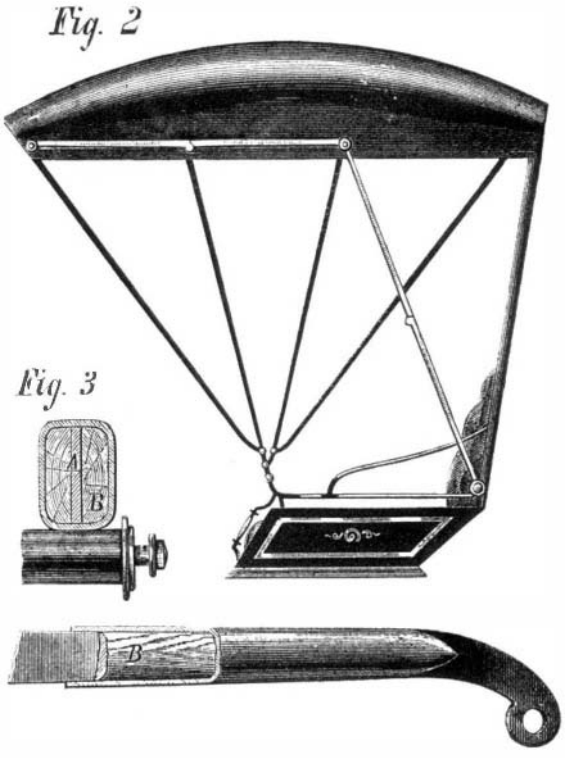
At the works of the Lawes Company the construction of the apparatus came to about $50 per chamber, while the saving in steam, acid, niter, and labor during three months amounted to $1 25 per tun of acid of 1.6 specific gravity, made from pyrites.

No doubt different localities, different care, and different prices will lead to different results. But even if the savings should elsewhere be considerably less, the result will still appear acceptable, considering the simple and inexpensive means by which it has been attained, and the large consumption of the article which it helps to cheapen.—*Chemical News.*

The Siege of Paris.

About two years ago there was erected in this city a large circular iron building, known as the Colosseum, one hundred feet or more in diameter, and nearly the same in hight, for the special exhibition of panoramic pictures. At the center or hub, of the building is a spiral stairway, and also an elevator, by which visitors find access to a lofty balcony whence they look down upon the pictures, which are arranged upon the inner walls of the structure. As the balcony is circular, the visitor only has to walk a short distance round to inspect the entire panorama. At the the present time the art work on exhibition is a panoramic view entitled the Siege of Paris. It represents the Prussian army in their entrenchments around the great city, which is beheld in the distance. Some of the scenes are quite spirited. A view showing the working and firing of a battery of great siege guns, by the Prussians, is particularly noticeable. Standing upon the elevated balcony before mentioned, the visitor experiences the pleasing illusion of looking down, as it were, from a balloon, over a very widely extended area. The painting is, we believe, some three hundred feet in length by fifty feet in hight.

Fig. 2



TOPLIFF'S BOW SOCKET.

A New Mucilage.

The *Journal de Pharmacie* states that if, to a strong solution of gum arabic, measuring 8½ fluid ounces, a solution of 30 grains of sulphate of aluminum dissolved in ½ of an ounce of water be added, a very strong mucilage is formed, capable of fastening wood together, or of mending porcelain or glass