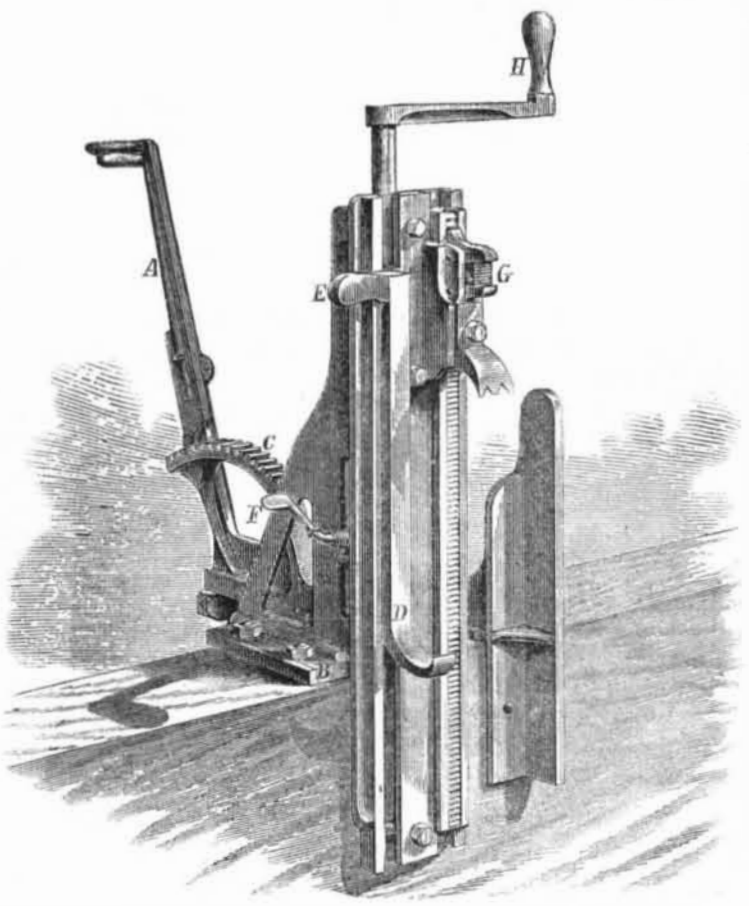
IMPROVED FROST LOG DOG.

The engraving shown herewith is a side view of Brown's frost dog, a new and useful device for holding frozen, knotty, or crooked logs while the same are being sawn. The object is to clutch the log instantaneously and hold it firmly while sawing the first half, or until the log is cut through and through. It is the invention of a practical mechanic and sawyer, who, finding it impossible to hold frozen logs as firmly as desired, with any available means, went to work and, with his jack knife, whittled out the patterns for his device. It has now been in use in circular saw mills in nearly all sections of the country for over three years.

The apparatus is bolted down from three to six feet from the head end of the set beam, where the sawyer has it under his immediate control, and the log is rolled on the set works in the ordinary way and left or held in the position desired. By means of the handle, A, on the backside, the whole dog is drawn toward the log until it comes to a bearing, working in long slides, B, bolted to the set beam. As the operator lets go this handle, it drops down, and is held firmly wherever left by the half circle gear, C. The bottom dog, D, is next drawn up by the handle, E, at the lift until it touches the log and is held up by the little crank, F, which works in a movable nut. By pressing together, with the thumb and forefinger, the two catches, G, the other dog is instantly placed in position on the top of the log. These catches work in the notched slide, to which they are attached, and to which is secured another movable nut, so that it is impossible for the dog to slip up or down while the catches are in action. The sawyer now turns the top crank, H, on the shaft of which there is a right and left hand thread; thus imbedding both dogs in the log and holding the same immovable until it is entirely sawn, leaving only a thin slab in the clutch of the dogs. If it be desirable to turn the log when partly sawn, the crank is simply revolved back a half turn, loosening both dogs; then the knee is thrown clear back in the slides by the handle at the back of it, letting the log have a bearing against the knee at the right, as it is turned over with the sawn side against it. The operation, as before described, is repeated, and the dogs will hold up the last board firm and solid. It is claimed that the device is so arranged that it is simply impossible to run the saw on the ends of the dogs, as the latter are always half an inch inside and clear of the blade.

It is stated that the apparatus can be readily attached by the sawyer to any set works in the country having a beam run lengthwise, and it is now in use in at least one hundred and fifty of the principal mills in New England. The operation of dogging a log, as described, is very rapid, and we learn that the whole time it takes for the sawyer to fasten securely a knotty, frozen, hemlock log does not exceed a few seconds.

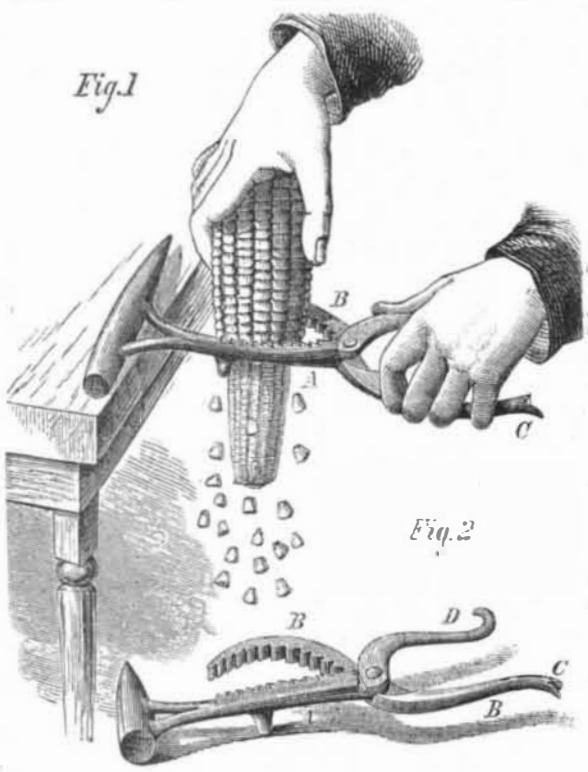
Patented August 23, 1870, by John S. Brown, of Windham, N. H. For further information address the sole manufacturers, S. C. Forsaith & Co., Manchester, N. H.



BROWN'S FROST LOG DOG.

COMBINATION CORN SHELLER, BOOTJACK, ETC.

A hand corn sheller, a bootjack, a hammer, a hook claw, a tack drawer, a pot lifter, and a wrench, are all combined in the single instrument represented in our engraving, the construction of which amounts to simply three pieces of metal fastened together by a single rivet. Mr. Anthony Iske, of Lancaster, Pa., is the inventor, and he clearly deserves credit for no small amount of mechanical ingenuity.



The portion, A, is provided with a hammer at one end, a fulcrum or rest near the middle, and a curved stem, having teeth on one side. The part, B, is S shaped, and its upper curve is provided with teeth facing those on portion, A. Its lower extremity, C, is formed for drawing out tacks or lifting off stove lids. The third section, D, is terminated with a hook which adapts it to various purposes. The position of the pivot is clearly indicated. Fig. 1 shows how the implement is used for shelling corn, the ear being introduced vertically between the toothed portions and the hammer edge placed upon the table. The shelling is accomplished by a downward motion and a quick turn of the wrist. When laid upon the floor, as in Fig. 2, on the hammer end being pressed down by the foot of the operator, the leg or fulcrum raises the handles, which, together, form an excellent bootjack.

Not content with all the applications of his device, as above noted, the inventor also suggests that a recess might be arranged in some portion so as to adapt it to cracking nuts.

Patents on combined implements of this kind and simple household contrivances of easy manufacture, without involving large capital, are the class of inventions most in demand, and meet with ready sale.

Hydraulic Mining in California.

Five years ago, fifty inches of water was considered an unusually large quantity for a company to purchase, says the *Calaveras Chronicle*. It was conducted to the claim through a small canvas hose, with necessarily little pressure, and precipitated against the bank from an inch nozzle. The stream had no more effect upon the gravel than would have been produced by the discharge of a six inch syringe. Miners were forced to "coyote" under the bank and "cave it down" to get gravel to wash—a slow, laborious and expensive method of procedure. The sluices attached to these primitive "hydraulics" were never more than twelve inches wide or high, and yet the capacity was ample for the requirements of mining as then conducted. That whole system of operations has been revolutionized. At present three hundred inches of water is the minimum employed in any claim that aspires to the dignity of a hydraulic. Iron has taken the place of canvas for hose, and the greater the pressure to be obtained the better. Patent nozzles direct the streams that cut down the bank like grass before the scythe, and the mingled gravel and water find passage from the mine through a three foot flume. Really, more dirt is put through the sluices of a modern hydraulic in a week that was formerly washed during an entire season. And yet the cost of running one of the mammoth hydraulics of today is but a trifle, if any, more than the expense of conducting one of the piddling concerns that disgraced the name ten years ago. Water works cheaper than hands, and the employment of that element, to the almost entire seclusion of manual labor, is the principal reason why it costs no more to wash a tun of gravel now than it formerly did to move a single pound.

Hydraulic mining in this country, notwithstanding the progress made during the past two years, is yet in its infancy. A beginning has scarcely been made. Two thirds of the abandoned ground, from one end of the country to the other, will pay for re-working, and new mines are constantly being discovered and opened. As an illustration we will cite one instance: Near Murphys in this county, a gravel mine, one hundred and sixty acres in extent, has lately been located and patented. Beyond a little superficial prospecting no work has been done upon it, and yet a tenth interest in the ground was sold for $10,000, the other day. Some curious individual has made an estimate of the probable yield of the entire mine, basing his calculations upon the "prospects" obtained. The result of his figuring is that the whole one hundred and sixty acres will yield an average of ninety cents per square yard.

New Mode of Liquefying Gases.

By the application of cold and pressure in suitably contrived machines, all of the gases with the exception of six, nitrogen, hydrogen oxygen, marsh gas, carbonic oxide and nitric oxide: have been reduced to a liquid condition This liquefaction was first performed by Faraday and served to prove the fact that gases and vapors are not distinct in their nature. It may be remembered that the simple apparatus used during these initial experiments consisted of a bent glass tube, having a long and a short leg at right angles. Into the open end of the longer portion was placed a substance from which gas could be obtained by heat, after which the tube was hermetically sealed. The shorter limb was then plunged into a freezing mixture, and heat applied to the larger portion, generating large quantities of gas, upon which, being confined in a small compass, the pressure gradually increased, finally condensing the same into liquid form in the smaller receptacle. The facts thus recalled will indicate the importance of a recent experiment made by M. Melsens, a celebrated chemist of Brussels, who, it is stated, has lately succeded in obtaining wood charcoal in an absolutely pure state. So great is the absorbent power of this substance that it will concentrate in its pores a quantity of gas equal to its own weight. This has been used by Melsens in an apparatus similar to that of Faraday above described; and through its agency, he has succeeded in liquefying gases with great readiness. The charcoal, it seems, is placed in the long leg and allowed to absorb as much gas as possible. The tube is then sealed and enclosed in a tin pipe heated to 212° by a current of steam. The gas in the charcoal is thus disengaged and caused to compress itself into the short limb, passing almost immediately into a liquid state. It is stated that from one to one and a half cubic inches of liquefied gas can be quickly obtained.

Taxes on Knowledge.

O. M. says: Please ask our next Congress to remove all taxes on means of education, such as the import duty of 40 per cent on philosophical apparatus. "I know of several parties who propose to import telescopes and other scientific implements for their own use; but on ascertaining the fact of that enormous duty, they at once gave it up. I cannot see that it would lessen the profits of those in this country who sell such instruments if the duty were removed, as the goods are mostly imported; nor would it materially interfere with such men as Alvan Clark, Ritchie, Zeutmayer, Spencer, and others, whose business depends mostly on their well known skill and integrity. Please lend your influence to assist those whose purses are scant, yet who are trying to educate themselves and others."

Fast Trains in England.

There has been a dispute as to which is the fastest train in England. Precedence has been claimed for the 10 A. M. express from King's Cross. It also asserted that the Great Western express between Paddington and Exeter is faster. Between Paddington and Swindon the distance is 77¾ miles, and both the up and down trains travel it in 87 minutes, including the starting and stopping, or at the rate of 53·62 miles per hour. At full pace, the speed is as nearly as possible a mile a minute. The Great Western railway is built on a 7 feet gage, but many parts of the line have a third rail, allowing narrow (4 feet 8½ inches) gage trains to run on it also.

LIGHTNING SHEEP SHEARS.

This ingenious apparatus, according to the *Ironmonger* will shear six sheep in the time that it now takes to denude one of his fleece. Anybody can operate it and do better work than the most skillful shearer with the old fashioned shears, and without danger of cutting the flesh. The handle of the knife is arranged with a spring, and the blade, by pressing the former, is caused to travel across the sharp teeth, which are first imbedded in the wool. The movement resembles that of the ordinary sciesors blade. When the knife returns, it raises itself clear of the wool, allowing the same to escape uninjured by scraping.