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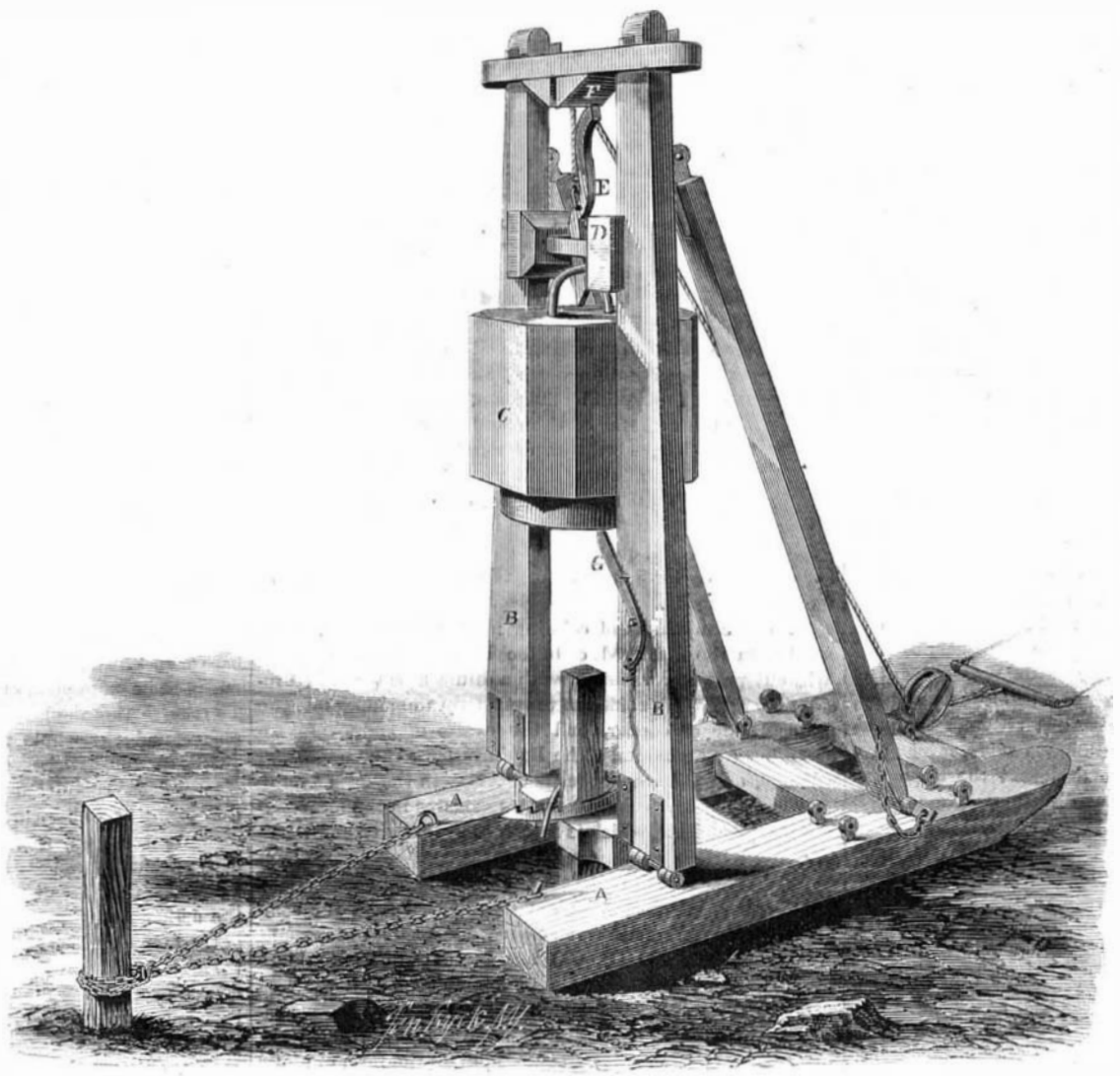
Improved Post Driving Machine.

It is claimed that fence posts which are driven will stand firmer and last longer than those which are set with the spade. Certainly, with proper apparatus, posts may be driven with far less labor than they can be set in dug holes. The one of which the accompanying engraving is a correct representation, appears to be admirably adapted to the requirements of fence building. It is strong and efficient, yet light and portable, and may be used equally well on uneven ground and side hills as on a level.

The bottom is a frame consisting of two runners, A, connected and braced by cross pieces, the forward ends of the runners being beveled for facility in drawing the machine from place to place. To this frame are pivoted the uprights, B, connected at the top by a cross framing. These uprights form the slides for the hammer, C, and guide, D the hammer being a block of wood sufficiently heavy for the purpose, and hooped with iron at its face end. A tripping hook, E, and the inclined face, F, are similar in form and arrangement to those on the ordinary pile driver. To hold the hammer or drop in an elevated position, while the machine is being drawn from place to place, and while a post is being adjusted to be driven, a catch latch, G, is attached to one of the uprights. The drop is raised by horse power, by means of a rope and pulleys, as seen. When the maine is to be moved the staple of the horse's whiffletree is attached to a hook at the forward end of the frame, and a graduated or measuring chain, seen attached to the rear ends of the runners, is passed around the post last driven, and the machine moved until the chain is tightened, when the distance of the posts one from the other is thus measured, and the machine is ready to drive another post. To hold the post, to be driven, in place, two adjustable arms which hook into each other are attached to the yoke at the bottom of the uprights. Their form and operation are readily seen in the engraving. At the back of the uprights are diagonal braces, H, which are pivoted to the uprights at one end, and to the runners at the other. These lower ends may be advanced to or receded from the foot of the uprights, and secured to either one of the series of eyebolts seen on the runners. This will allow the machine to work on uneven ground, or a side hill, while the uprights will remain perpendicular. The inventor claims that the machine will drive posts at equal distances apart as fast as four men can follow up and board.



FITCH'S PATENT FENCE POST DRIVER.

Patented through the Scientific American Patent Agency, May 7, and Nov. 26, 1867, by C. T. Fitch. All letters of inquiry should be addressed to Fitch & Videto, Harbour Creek, Pa.

American Ordnance.

Whatever representations or misrepresentations may have been made on either side of the Atlantic with regard to the performances of American ordnance, it is certain that it comes out very creditably in this respect in the report of the U. S. Chief of Ordnance—General Dyer—just issued. The official facts contained in this report are at once interesting and instructive, and General Dyer demonstrates that the American heavy smooth bores are "the cheapest and most effective gun possessed by any nation."

The report states that the 20-inch gun has been fired with a charge of 200 pounds of powder and a shot weighing 1,100 pounds, and the General states that this may be the regular charge for this gun. The range at 25° elevation was more than four and a half miles. The 15-inch gun, about the performance of which, at Shoeburyness, we in England know something, has been fired as follows:—7 times with 40 pounds of powder and a shell weighing 350 pounds; 5 times with 50 pounds of powder and a shell weighing 350 pounds; 70 times with 50 pounds of powder and a shot weighing 434 pounds; 59 times with 55 pounds of powder, and a shot weighing 435 pounds; once with 60 pounds of powder and a shot weighing 434 pounds; once with 75 pounds of powder and a shot weighing 434 pounds; once with 80 pounds of powder and a shot weighing 434 pounds; once with 90 pounds of powder and a shot weighing 434 pounds; and 125 times with 100 pounds of powder and a shot weighing 434 pounds. The mean range obtained with 100 pounds of powder at an elevation of 32°, was 7,732 yards. The mean initial velocity of the shot with the same charge, was 1,510 feet per second. Ten rounds were fired in 35 minutes, which was as rapidly as the gun could be fired with 100 pounds of powder and a solid shot. An examination of the gun has failed to detect any enlargement of the bore from firing, neither has the metal been cut away by the powder. In fact, the gun is reported to be serviceable in every respect.

If the performances of the 15-inch gun are thus proved to be in every respect satisfactory, no less so are those of the 20-inch gun. This formidable weapon has been fired with 200 pounds of powder and a shot weighing 1,100 pounds, the range at 25° elevation being more than four miles and a half. This gun and its charge are difficult things for us to realize, but here they are, and here are their results, and, what is more, General Dyer has no hesitation in assigning this heavy charge as that which may be regularly used in this gun. However we may argue down the matter in theory, there is no getting over these practical facts, unless we dub General Dyer a fool, and his report a fiction.—*London Mechanics' Magazine.*

Transfusion in Cases of Poisoning.

Hitherto transfusion of healthy blood into the veins of another being was applied only in extreme cases where loss of blood had rendered necessary some desperate means of replacing the loss of red corpuscles and oxygen in the arteries, and restoring respiration and circulation. Quite lately, however, a German and a French physician, Drs. Eulenburg and Landers, have sent to the French Academy a treatise on Transfusion of Blood, in which, by an extended series of experimental researches upon animals, they seek to prove that this process, modified in a certain way, and repeated if necessary, should be viewed as a sovereign mode of treatment in all cases of acute poisoning, viz., of such poisons which, after absorption by the blood, act injuriously upon the vital nervous centers.

The rationale of this theory is given by them as follows: The poisonous substances in question act in this way—they are absorbed into the blood from the stomach or other places of application, and are then carried to those spots in which they exert prominently their deleterious influence (*e. g.*, the *medulla oblongata*, the central organ of respiration and movement of the heart). Once arrived in the blood, these poisons are not to be counteracted by so-called antidotes except in a few cases. In order to produce its effect, however, each poison must be present in a certain quantity, not below some minimum, without which its action on the tissues would not become potent.

Supposing that the blood contained an excess of such poison, it is seen that by removing a portion of this so-to-say saturated solution, and by substituting a proportional quantum of pure blood, the relative quantity of poison would be greatly reduced. By replacing the blood removed, dangers are obviated which might result from its withdrawal. Transfusion in this instance should be viewed as entirely harmless, and may be repeated a number of times, to the total removal of the original supply that had absorbed the poison. In their experiments the authors continued this substitution as long as the symptoms indicated still the presence of poison.

The most successful results were obtained with certain poisonous gases, as carbonic acid, and carbonic oxide. Blood surcharged with carbonic acid causes death under the known phenomena of asphyxia, which are produced in part by the exciting action of the condensed gas, and partly by the simultaneous absence of oxygen. It seems rational to suppose that the best remedy in this case would be to impregnate the blood with oxygen, and to free it at the same time from its excess of carbonic acid. The oxygenated blood for injection used was either arterial and rich in oxygen, or such that had been beaten in the air and turned bright red. Transfusion in this instance proved much more efficacious than artificial respiratory movements, which can only be of use when the heart is yet in action and capable of performing its function of sending the blood from the lungs to the centers. On the contrary, by injecting oxygenated blood through the veins toward the heart, it has been shown by the experiments that the action of the heart, even if reduced to a minimum or even altogether extinguished, could be revived. Similar results were obtained in poisoning by carbonic oxide. There is in this case the aggravating circumstance that this gas when absorbed into the blood takes oxygen from the red corpuscles, rendering them incapable to perform the exchange of gases in the lungs, and that the blood thus, in greater or less measure becomes unfit for respiration. Here it is the corpuscles which are affected and must be replaced, and the truth of this view has already been established by Kuhne in actual cases of poisoning in human subjects and animals.

The experiments instituted to test the method in poisoning by chloroform and ether, as well as by narcotic alkaloids (morphia, strychnia), have given analogous results, the agents being in all cases given in toxical doses.—*Druggists' Circular.*

AN ELECTRICAL CLOCK in the rotunda of the Philadelphia Merchants' Exchange has a running gear of the simplest description, consisting merely of two cog wheels and a ratchet wheel. The driving power is supplied by a weak galvanic battery, the currents from which, transmitted through two galvanometer coils placed one on each side of the clock case, act upon steel bar magnets set within the pendulum ball. The latter swings between the two coils, so that when one of them is "positively charged" the ball is attracted until by contact it becomes similarly electrified, and consequently repelled, then swinging over to the "negative" coil, it becomes negatively charged, again repelled, and thus the vibrations are kept up indefinitely, or as long as the battery continues working. The alternate positive and negative charges are made and broken by a simple slide bar moved by a wire pin on the pendulum rod.