

**Device for Marking and Furrowing Land for Corn.**

The inventor of this device claims that it does its work easier and more effectually than others; that it does not harden the soil, and thus hinder the germination of the seed; that it can be driven within a few feet of the fence, and be easily turned; and that it is cheap, being manufactured at a cost so low as to bring it within the reach of all.

As seen, it is in form very like a boy's sled, the runners being three and a half or four feet apart, according to the width of the rows. The runners are shod with iron, two inches wide, by one thick. At the rear of these runners, on the outside, is attached a mold board, or share of cast iron, for making the furrows. Pivoted to the center of the front cross-piece of the sled is an arm, projecting from the side of the sled, and carrying a bar and pointed marker for determining the line of the furrow next to be formed. The depth of this mark may be controlled by the driver's foot. His seat is so arranged that, by sitting further forward or back, he may, by thus elevating or depressing the back end of the sled, regulate the depth of the furrows plowed by the shares. Farmers will readily understand the operation of this implement without further description.

It was patented February 13, 1866, by Joseph Plumb, who may be addressed relative thereto at Flemington, N. J.

**Discoveries in Palestine.**

The secretary of the Palestine Exploration Fund writes to the *London Times*:-

"When the committee of the Palestine Exploration Fund sent out their second exploring party to the Holy Land in January last, under the charge of Lieutenant Charles Warren, Royal Engineers, they gave him a general instruction to make Jerusalem his headquarters, and to excavate, and investigate about the city as much as possible, especially in the sacred enclosure of the Haram esh-Sherif. The result is that outside the walls of the enclosure he has made a discovery, which is almost, if not quite, as important as any that has ever been made in or about Jerusalem, and which cannot fail to be the fruitful parent of many more. He has found that the south wall of the Haram, which rears its venerable face to a height of eighty feet above the soil, descends to no less a depth than fifty-three feet below it—the solid rock of Mount Moriah, on which it is founded, being covered with that immense thickness of debris. Thus this wall must originally have stood at a height of one hundred and thirty feet above its foundations, fully justifying the expressions of Josephus, who says concerning it that 'if any one looked down from the top of the battlements into the valley he would be giddy, while the sight could not reach to such an immense depth.'"

"The foundation and unworn masonry of the buried portion may be expected to disclose many a secret affecting these venerable walls, secrets which Lieutenant Warren is now diligently occupied in revealing. But this is not all. He found two other things. He found first, that the eastern wall was prolonged beyond the southern face, and continues in the general direction of Siloam, with all the solidity and antiquity, which characterize its known portions. How far it continues, or what are its exact direction and extent, I expect to hear shortly from Lieutenant Warren. He found, secondly, that below the debris a second south wall exists twenty feet distant from the known one, and of slighter workmanship. How far this wall goes, what its purpose may have been, its relations to the 'triple gateway' and the staircase which M. de Saulcy believed that he had discovered to descend from the triple gateway, how this discovery may affect the piers of the arches below the southeast corner of the enclosure, are questions which I await further information to be able to answer.

"Our operations are threefold:

"1. Exploration—On which I have only to add that we have already materials for almost an entire, complete, and accurate map of the country and photographs of more than three hundred spots and objects, large numbers of which have never before been taken.

"2. Geology—for this our desire is to send out a party, under the charge of Mr. Prestwich, F. G. S., the eminent geologist, who has most kindly offered his services.

"3. Botany and Zoology—for which in like manner we hope to avail ourselves of the services of the Rev. H. B. Tristram, well tried and well known already in the same field, and anxious like an old hunter, to be off on his final chase."

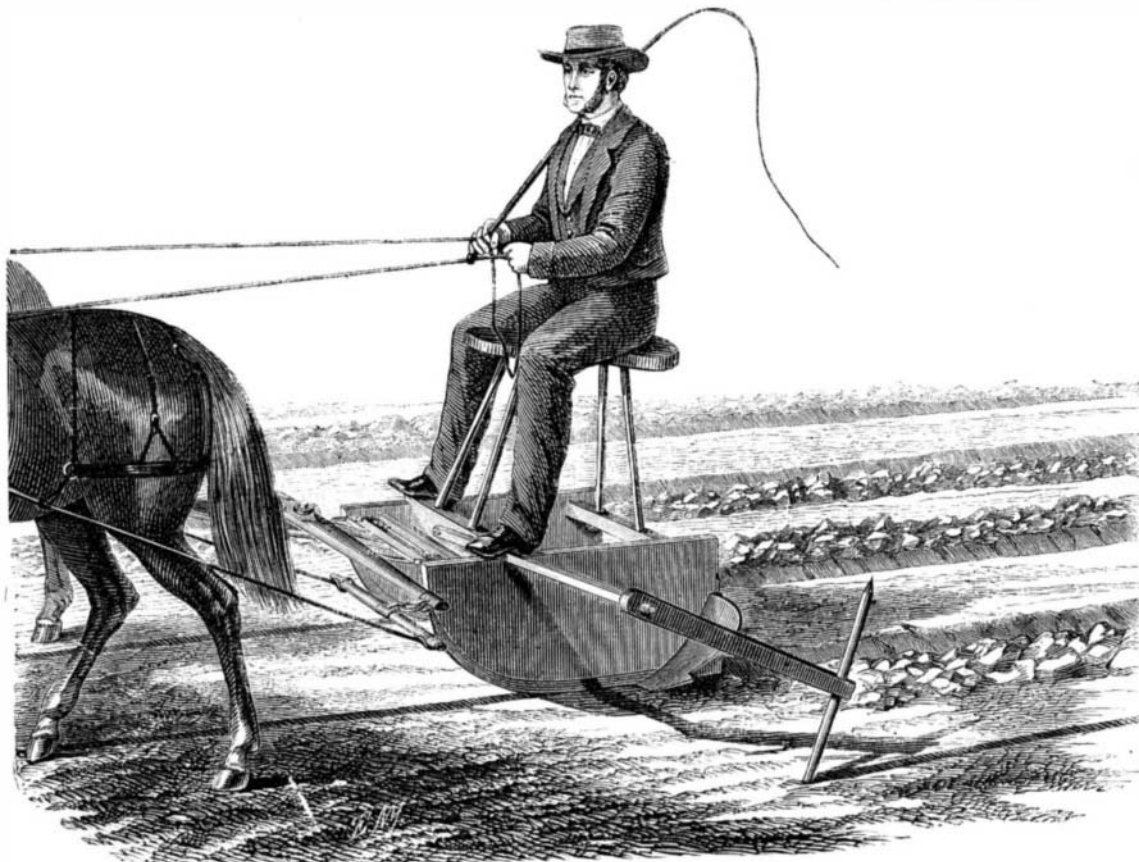
**Condition of the Oil Regions.**

A correspondent of the *Boston Transcript* thus describes the oil operations in Pennsylvania:-

"At Petroleum Center about one well in six is in operation. From the high hill west of the town you can see half a dozen villages and more than two thousand wells, some new, but many more utterly abandoned. On the top of this hill there is a fine flowing well which yields fifty barrels in a day—the only flowing well in all the region. The pumping wells

yield from eight to thirty barrels in the day. A well that yields less than eight barrels will not pay for the working, even at the present advanced prices. The business has now passed entirely out of the hands of speculators, and is conducted in an orderly way, by 'solid' and intelligent men, and with improved methods.

"A very intelligent owner of some of the wells explained and illustrated to me all the process of getting the oil—from the first experiment with the auger to the final refining of the crude product; the boring through the various strata, the sand pumps, the seed bag, the casing, the rods which clear out the tube, the gas furnaces—the whole very interesting, but which it would be impossible to explain in the limits of

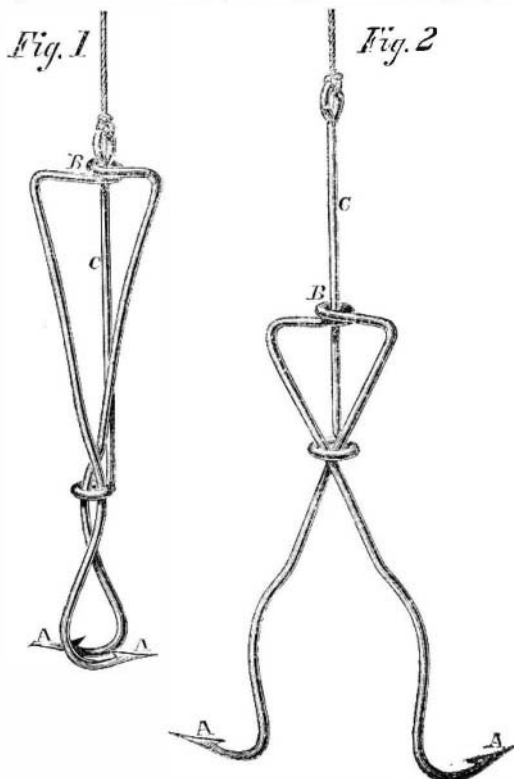
**PLUMB'S PATENT FURROWING SLED.**

a letter. Hardly any wood is consumed now for fuel. Some of the furnaces are fed by the escaping gas, but more by benzine, of which an ordinary engine furnace burns about a barrel in twenty-four hours. The sparks from a chimney would be dangerous in so explosive an atmosphere. Smoking is strictly prohibited in the neighborhood of the wells. But, as it is, fires are very frequent—hardly a week passes without them.

"The present high price of the oil is stimulating new enterprises, and the owners of wells are encouraged. You see the derricks rising on the tops of the hills, more than three hundred feet above the level of the railway. The gas is carried up the slopes in pipes for half a mile to make fuel for boring these new wells. Not one in three will strike oil at all, and not half of those who strike it will get it in profitable quantity. But the production is still very large, never, on the whole, greater than now. It is said that the famous Noble well, which has now done its work, yielded, before it expired, not less than four hundred and fifty thousand barrels of oil. It was sold for half a million of dollars."

**KIDDER'S EUREKA TRAP FISH HOOK.**

"Fisherman's luck" is merely a synonym for "just no luck at all." It is bad enough to have a provoking nibble,



with no earnest and honest bite, but to have your bait taken repeatedly, and not secure your fish, requires some philosophy to bear with equanimity. The design of the hook rep-

resented in the accompanying engraving is to save the angler from these vexations, by surely securing the fish which has temerity enough to receive the barbs of this hook.

Fig. 1 shows the hook set or closed, and Fig. 2 the same sprung or open. The hook is a steel wire, the ends formed into points and barbs, A, and the center of the wire bent into an eye, B. Near the points the two arms of the wire are bowed outward, and, when sprung, as in Fig. 1, they cross or overlap. In this position they are held by a ring-clasp, C, to the upper end of which the line is attached. It is evident that a slight pull on the points, A, will slide the hook through the clasp, and allow its two sides to spring apart; of course, if the barbs are in the fish's mouth, this action will transfix the game, and hold it securely. It can be set instantly, by pushing down the clasp, and in the same manner it can be easily removed from the mouth of the fish. Its operation is readily comprehended from the foregoing.

Patented through the SCIENTIFIC AMERICAN Patent Agency, by Daniel Kidder, who may be addressed for the sale of the right at Franklin, N. H.

**American Guns and English Armor.**

If I have hitherto refrained from exposing the hollowess of the ground of self-gratulation in which some of our artillerymen have been indulging, in consequence of the alleged failure of the American 15-inch gun to pierce an 8-inch plate although that plate had previously been pierced by some of our guns not of the largest size, it is because I expected that some communications from America would deal with the question in a more authoritative manner than any English spectator could do. I send you herewith an extract from the *New York Army and Navy Journal*, of the 10th inst., which perhaps you may

think it useful to lay before your readers, and meanwhile permit me to express my conviction that the theories so precipitately adopted with reference to the supposed inability of the 15-inch gun to pierce 8-inch plates are wholly erroneous, and must be abandoned by all who wish to preserve any reputation for a sound acquaintance with such subjects. The so-called American Mammoth powder is not the powder used in the American navy, and why was not the common 60-lbs. charge of American navy powder employed? The powder used in the American navy is somewhat stronger than the English powder, and as much as 100 lbs. of Mammoth powder has been burnt in the 15-inch gun without damaging the gun at all. Why then were such small charges of powder used in the English experiments, and why were not chilled shot tried? One would almost imagine that the main purpose of the experimentalists was self-deception. Let chilled shot be used in the 15-inch gun with heavy charges of good powder, and it will be found that the shot will be projected with ease through a target representing the side of the strongest ironclad we have, whether built or building.—*VINDICATOR in Engineering.*

[We should add, however, that "mammoth-grain" powder has lately been adopted in the navy for the 15-inch and 20-inch guns. It is thought by some ordnance officers that the service charge will, before long, be increased enough to give 1600 feet velocity to the 15-inch shot.

We have published several articles intended to show that the trials of the American 15-inch gun at Shoeburyness were inadequate to prove its power, and we have before us now a letter from one of our ordnance officers which sustains the assertion of *Vindicator*. Our authority says: "We never now use in the 15-inch gun less than 100 lbs. mammoth powder. We get with that charge over 1,500 feet velocity." Comment is unnecessary. Since writing the above, a cable telegram informs us that, with 100 lbs. of powder, the 15-inch shot passed entirely through the 8-inch target.—*EDS. SCI. AM.]*

**ERRORS IN SCIENTIFIC JOURNALS.**

We notice in *Engineering* of September 13 a set of valuable tables on steamship performance. Referring to the steamship *La Plata*—mate to Cunard's *Arabia*—in three tables we find her length put down as 284 feet; we may be wrong, but we supposed she was some 100 feet longer than this.

Again, the weight of each of her wheels is set down at 37.5 tons each. Is this correct, and, if not, how many more mistakes are there in these tables?

We allude to this because we have been annoyed to find errors, owing to negligent reading of proof, in the late editions of Mr. Bourne's books.

**SAND PAPER.**—We notice in the *Fair* a variety of samples of sand paper of a superior quality, made by Jones & Cromwell, of Brooklyn, N. Y. The grain is very uniform, sharp, and the paper tenacious. We understand that these makers are using new and peculiar mechanism, which improves the production and facilitates the manufacture.