

receive a second pressing which determines their width, and lastly comes the final squeeze which renders them glossy, hard, compact, and ready for market.

The Berlin Pioneer Tobacco Factory has been in existence only about nine months, but the extension and rapid growth of their business during that time may be inferred from the fact that to-day they employ between fifty and sixty hands, and that they have already manufactured and sold over 172,000 lbs. of tobacco, thus yielding to the country in nine months a revenue of nearly thirty-five thousand dollars.

#### Dynamite for Land Reclamation.

The following report of experiments with the newly discovered blasting agent, dynamite, which were carried out on the estate of Sir W. S. Maxwell, is condensed from the *Glasgow Herald*. The experiments were conducted by Mr. Downie, assisted by Mr. John Scott, manager of the Glasgow Canadian Land and Trust Company, and others interested, the principal object being as stated in a previous issue—to test the utility of the material for land reclamation in this country.

Dynamite is nitro-glycerine mixed with a silicious earth, found in Germany, which absorbs and retains the liquid explosive. It is a moist and plastic solid, resembling in color the finer qualities of raw sugar, and the great advantage of the substance over gunpowder is its greater comparative safety, as it will not explode without percussion.

We quote the actual experiments verbatim from the *Herald*, illustrating the several operations of "loading" a borehole, by engravings kindly lent us by Messrs. Young & Miller, of this city.

After performing some preliminary and somewhat elementary operations, Mr. Downie turned his attention to the root stumps of a number of trees that had recently been cut down. By means of an auger, a hole about 1½ inches diameter was bored vertically to a depth of 12 or 15 inches in one of the stumps, and when it was found to be quite through the wood of the stump it was continued by means of a punch to a depth of fully 2 feet. Two or three cartridges were put into the bore-hole and firmly driven home by means of a wooden rammer. Then a small cartridge, called a "primer," prepared with a cap-tipped fuse, was dropped in and rammed home, and the hole was tamped or stemmed by filling it to the top with water, care having in this case been taken to put a lining of clay round the junction of the cap with the fuse. The latter was fired, the observers betook themselves to a respectful distance, and in a brief space of time a great upheaval took place. The noise of the explosion was in a great measure smothered. When the members of the party returned to the spot they found the stump to be rent in the most extraordinary manner; but the general opinion was, that the bore-hole had been made so deep that the energy of the explosion had spent itself too much upon the subsoil, and too little upon the wood. The stump next operated upon was bored to a less depth, and the result of the blasting process was more effective. In either case a few strokes with an axe, by way of severing the several root-members, would be quite sufficient to leave the woody masses in such a condition that they could easily be dragged out and lifted away.

It was suggested by Mr. John Scott that the operation of piercing with the auger should be dispensed with in blasting the next root-stump, so as to do the

work with as great economy of time as possible. In this instance, therefore, the pinch was brought into requisition instead of the auger, and by means of it a hole was driven horizontally inward between two of the principal root members to about the centre of the stump. The hole was charged and fired in the usual way, the result being a much greater amount of eruptive and disruptive action, with a smaller expenditure of time and labor. One or two other root stumps of large size were blasted in the same way, and it was clearly demonstrated that, under certain circumstances, dynamite could be employed to more advantage immediately underneath rather than in the mass of material to be operated upon. Mr. Scott expressed himself to be fully satisfied, from what he had now witnessed, that he could use the new blasting agent with great effect and economy in land-clearing operations in Canada, so far as tree roots were concerned, and therefore the next experiments were with boulder stones, all of which were of very hard, tough and solid whinstone.

The first boulder that was tried was out in "the open." One small cartridge, properly prepared, was laid on an inclined face of the stone, then covered loosely with soil, and fired. No rupture resulting from the shot, another was resorted to, a shallow groove on another part of the boulder being selected for laying on the charge. The latter was loosely covered, as before, and fired; and such persons as had not seen a similar experiment previously were greatly surprised at the destructive effect of the explosion, when the small amount of the charge was considered, together with the fact that no bore-hole was driven into the boulder. Other two large boulders were next attacked in an adjoining field that was being drained, the stones having been met with in digging the drains. The first of them was embedded in tolerably firm ground, and on being fired in situ, without any bore-hole, was so severely "punished" that it was almost crumbled into dust. Owing to the fact that the other boulder was embedded in a deposit of sand, the small charge of dynamite used at first seemed to have spent itself in burying it to a much greater depth in the sand; but on employing a somewhat larger charge, besides being buried still deeper in the sand, the boulder was so thoroughly broken into pieces that it might well have been used for road metal.

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The Butter and Cheese Exchange of New York have voted in favor of reciprocity between Canada and the United States.

Many accounts from the south-western parts of Minnesota represent the ground as nearly alive with young grasshoppers, which have already commenced eating vegetation.

#### The Most Profitable Crop.

It may be interesting to every farmer to know which is the most profitable crop in the various states. The Department, from its county correspondents,

received last March answers to the question, which the Commissioner thus generalizes:—

In Maine, hay occupies the first place and dairy-husbandry the second; hay and stock-raising are of equal importance in New Hampshire; dairy-husbandry stands high in its predominance in Vermont; in Massachusetts, hay first, market-gardening next; the garden and the dairy divide the honors in Rhode Island; and tobacco stands first in Connecticut.

There is much diversity in New York, but dairy-husbandry is far in advance, being the choice of one-third of the counties. There is much variety in New Jersey, though market-gardening stands first. In Pennsylvania, manufacturing and mining make a varied production most popular, few counties indicating very decided preferences, though wheat (as few would suppose) holds the first place in one-sixth of the counties. In Delaware, tobacco; in Maryland, tobacco and fruit growing. Of more than fifty Virginia counties expressing decided preferences, ten favor tobacco, nine "mixed husbandry," six corn, five stock-raising, five market-gardening, and others pean-nuts, sheep-husbandry, fruit growing and wheat. In North Carolina corn stands numerically before cotton. In Florida sugar-cane is preferable, while cotton predominates in South Carolina, Georgia, Alabama, Mississippi, and in Texas. In Arkansas corn stands first, and in Tennessee hay and corn are preferred.

In West Virginia corn and stock-raising; in Kentucky, tobacco and corn; in Ohio, great diversity appears, sheep-husbandry, corn, general cropping, wheat, hay, and fruit-growing; and in Michigan a similar variety—wheat, dairying, and fruit-growing. Corn is king in Indiana, and hay prime minister. Corn is also first in Illinois, and wheat next. In Minnesota, wheat; in Wisconsin, wheat and the dairy; in Iowa and Missouri, stock-growing, corn and wheat. The order in Kansas and Nebraska is wheat, stock-growing, and corn; in California, wheat sheep-husbandry and fruit-growing; in Oregon, wheat and stock-growing.

#### Eulogy on Canada.

At a recent meeting of the Boston Board of Trade, Mr. Atkinson spoke at length and with signal ability in favor of free trade with Canada. He urged the vast importance of removing the trade barriers between the two countries, and pictured the resources of Canada that might be made available for use in the States. We have room at present only for a few of Mr. Atkinson's remarks in one department of his address:—"What is the Dominion? How few can answer. I remember the enthusiasm with which our great Governor Andrew spoke of the lower British or Maritime Provinces of the Dominion the last time I dined with him before his death. He compared Nova Scotia and New Brunswick in area and mineral wealth to New York and Pennsylvania, and declared them equal, and he alleged, that what they lacked in agricultural power, if anything, was more than made up in the wealth of their fisheries. Passing by them, only consider how we may spare our too much

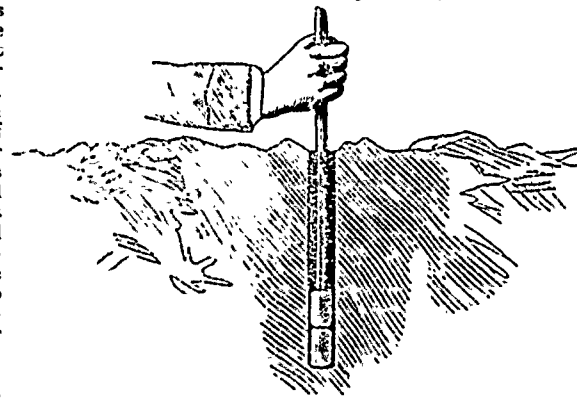


FIG. 3—One or more ordinary cartridges (not Primers), as the height of charge may require, are inserted into the borehole and each cartridge squeezed home separately with a wooden rammer so as to completely fill the borehole.

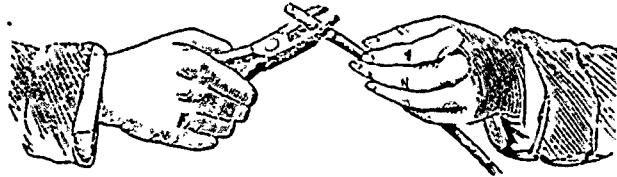


FIG. 1—A No. 100 fuse is cut clean and inserted into a detonator cap, till it reaches the fulminate. The open end of the detonator cap is then squeezed to the fuse, with a pair of nippers.

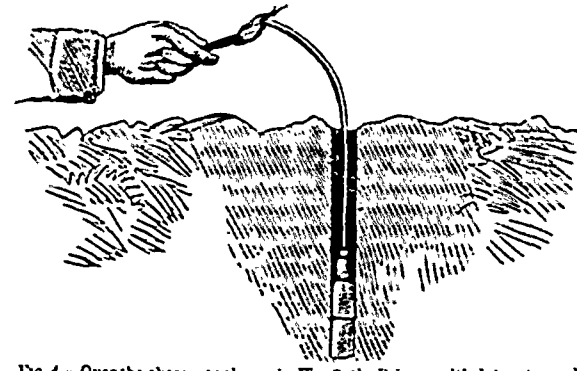


FIG. 4—Over the charge as shown in Fig. 3, the Primer, with detonator and fuse attached, is inserted, as shown, but not squeezed, and loose sand or water is poured on as tamping. The charge is then ready for firing.

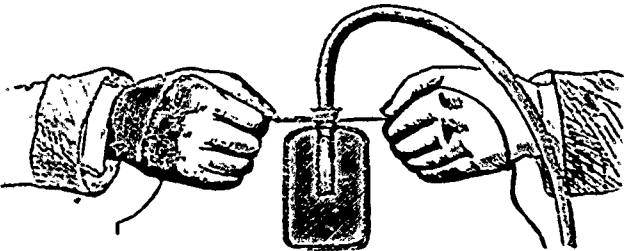


FIG. 2—A Primer cartridge (distinguished by the word Primer printed in red letters) is opened at one end, the detonator cap with fuse affixed, inserted as shown, and well secured with a string.