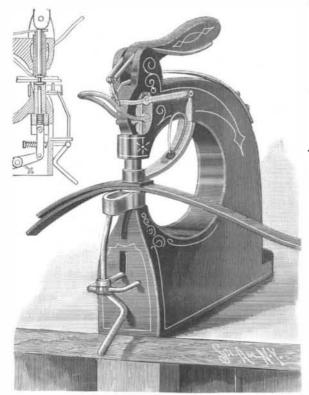
A LEATHER RIVETING MACHINE.

The machine shown in the accompanying illustration has plungers or rods to puncture the material, insert the rivet and washer and upset or head the end of the rivet shank. It has been patented by Christian A. Skeie, St. Hilaire, Minn. The small figure is a central sectional view. The presser plunger, which moves vertically in the arm of the machine, is tubular, and



SKEIE'S RIVETING MACHINE.

also tubular, to receive an inner riveting plunger. A spring plate attached to the upper side of the arm has across an acre and 70 rows to the acre makes a forked outer end surrounding the upper end of the 9.800 double hills of potatoes to the acre, or riveting plunger and bearing upon the washer-holding plunger, the spring forcing the plunger down on a washer. Pivoted to the outer end of the arm is a hand | making the hill cover some 18 inches, or half lever for forcing the riveting plunger downward, and pivoted also at the same point is a bifurcate lever have planted 60, and the 60 will every one adapted to be rocked in one direction by the hand make as fine potatoes if we have plenty of lever. Communicating with a side opening in the rain. I also give my potatoes fertilizing lower portion of the plunger is a curved washer chute, the washer being held in place in the chute by a spring finger, which yields sufficiently to allow the washer to be forced forward by a pusher connected to a pivoted lever whose other end has a pivoted link connection with the bifurcate lever, so that the washer may be fed by the operation of the hand lever which forces down the riveting plunger. Moving in line with the plunger, in a tubular portion sprout room I keep warm by a small charcoal fire in a cup, L, to introduce cold water into the boiler through of the base, is an anvil whose lower end has a link bake oven. One barrel of charcoal will be plenty for a tube running to the bottom of the latter. The obconnection with a pivoted rock arm, the lower end of the whole time. I put my potatoes into old barrels or ject of the bent tube was to allow of the escape of the foot treadle. A puncturing tool or awl is movable big heap or bunk. The smaller the boxes, the easier steam that might be produced. In this way was pre-

depending angle lever handle.

To place the work in position for riveting, the plunger is raised by a forwardly extending, curved, yoke-like handle, the plunger being then allowed to return to bear upon the yoke. The bifurcate lever is then rocked to push the washer down upon the work, and the treadle is operated to punch the hole, the moving vertically in it is a washer holding plunger, rivet being forced into position by the angle lever handle; the anvil is then pushed upward to force the shank of the rivet through the perforation, and the hand lever is moved to force the riveting plunger down upon and upset the end of the rivet.

REMARKABLE POTATO GROWING.

Mr. C. E. Ford, of Rusk, Texas, who writes that he has been taking and has kept files of the SCIENTIFIC AMERICAN for thirty years, sends us a photograph. from which the accompanying picture was made, and gives us particulars of the remarkable success he has achieved in raising potatoes. The potatoes he prefers for forcing are of the Early Rose variety, the vines or stalks growing 6 to 8 feet, and but seldon blooming or having balls. The Triumph is said to make a crop quicker than the Early Rose and to stand the dry weather better. Mr. Ford believes in "intensive" culture, or the higher fertilizing and increased labor on a small piece of land, rather than little labor and

the size of English peas or marbles before planting and then raises a crop in from four to six weeks, all of large size, without a peck of small potatoes to an acre. He writes:

"There were forty seed the size of peas planted to every double hill. I plant my potatoes in the water furrow and leave a balk 4 to 6 inches wide, and when the potato seed is dropped on the balk a part of the seed fall on each side of the narrow balk. I cover with two furrows of turning plow. I make my rows 3 feet apart; the hills 18 inches apart in row, which makes 140 hills 19,600 single hills. As you will see, a hill of 40 seed potatoes goes across the balk, the ground. I never plant less than 20 and

with liquid manure every rain. It takes from 60 to 75 potatoes to make a bushel, never more than 75. I have kept the same seed for 26 years and have potatoes both sweet and Irish the whole year round.

"By sprouting your potatoes you have eating potatoes in less than one-half the time it takes under the communication in passing through the furnace and old style of planting. It takes from four to six weeks to sprout the seed potato to the size of peas; the which is connected by a link with a driving power or small boxes, so as to get them warm easier than in a air when water was poured in and to give exit to the

finger being moved to push a rivet into position by a not less than twenty to forty—and let them fall on the balk in the water furrow and give two plowings. My sprout house has double walls and is filled in between with sawdust, also overhead, and has double doors."

STEAM AND SOLAR HEAT.

La Nature recently published a description of a vessel found at Pompeii with an internal fire box provided with tubes. The discovery of this apparatus or of another analogous to it da's back twenty years. for the Revue des Deux Mondes mentions it in its number of September 1, 1866.

Seneca, in his Natural Questions (vol. iii, p. 24) speaks of the Draco, a sort of boiler formed of a large spiral tube placed against the interior walls of the cylinder forming the furnace.

Heron, of Alexander, is still more explicit, and, in his Pneumatics, describes the véry arrangement of the Pompeijan apparatus under the name of Miliarion, a Greekized Latin term applied to the heat generator in general on account of its resemblance to a mile-

I was the first to give a French translation of this description in a volume now out of print. I give a summary of it here with the aid of a figure that has been skillfully restored by our draughtsman from the simple line drawing of Heron, and which shows, besides, the arrangement indicated by the Alexandrine fertilizing on a large tract. He sprouts his potatoes to engineer for producing one of those effects of amusing



EARLY ROSE POTATOES-3000 BUSHELS TO THE ACRE.

physics of which the ancients were so fond. Fig. 1 shows in the center the furnace in the form of a vertical cylinder. All around there was a boiler, likewise cylindrical, filled with water. A certain number of tubes, such as K, M and N, put its different parts in thus increasing the heating surface.

The cock, T, served to draw off hot water and the



Fig. 1.-HERON'S TUBULAR BOILER.



Fig. 2.-EOLIPYLE CHIMNEY.

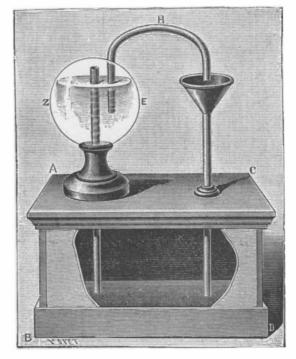


Fig. 3.-THE SOURCE.

is attached to a yoke plate in such manner that, by large enough, I knock off the hoops, take down the In the figure is seen a closed compartment into which the interposition of a coiled spring, the puncturing staves, and there are thousands upon thousands of the water did not enter, and which was designed to tool may be moved upward to puncture the leather without moving the anvil upward. Connected to a peas and a few the size of marbles; the whole mass is and a several way cock. This cock consisted of two yoke whose arms extend through holes in the hollow held together with small roots. I take a hand barrow concentric tubes capable of revolving, one within the base is an upwardly extending rivet pusher finger, movable in a slot in the bottom of a rivet tray, the and the third person breaks off as many as you wish- fixed to the top of the heat generator, through which

vertically in the anvil, and the lower end of the tool | and quicker they will sprout. When the potatoes get | vented the projection of water through the cup, L. small potatoes from the size of a bird's eye to that of set in motion various figures through the aid of steam (not a wheel barrow) and carry the seed down the row, other, with slight friction. The external tube, A, was