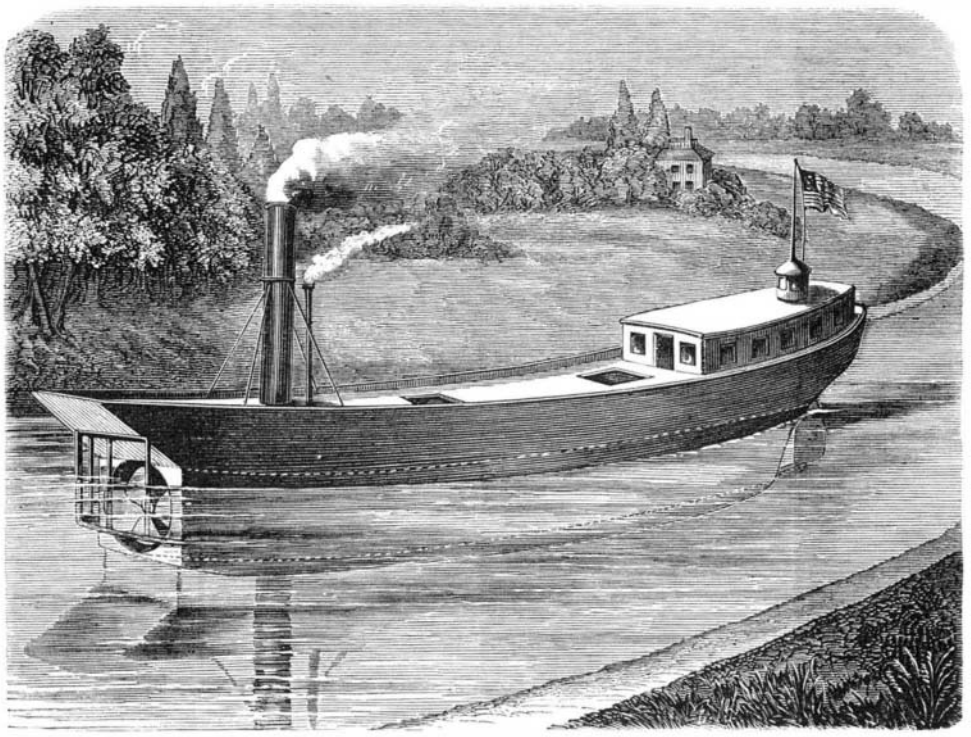
New Method of Propelling Canal Boats.

Notwithstanding the numerous attempts to substitute something better for canal boat propulsion than the wheel or screw, it may be safely said that the majority of mechanics and engineers still adhere to these time honored devices as being superior to anything else yet produced or likely to be produced for the purpose. The question of position is, however, still a moot-point. Side, bow, and stern have each their advocates, and arguments *pro* and *con* are not wanting for either of these positions. Resort to practical experiment can only determine which is the best, and this will, no doubt, soon be brought about, by the action of the New York State Commission and the alluring prize it has at its disposal for the successful competitor.

The inventor of the method illustrated in the accompanying engraving believes the bow is the position for either a propelling wheel or screw, and in order to produce direct longitudinal displacement and obviate side swells, he proposes to combine one or other of the devices referred to with a tube or passage from bow to stern of the boat through which the displaced water shall pass, while the boat is made to advance correspondingly.

Although we have shown in our engraving only the screw thus applied, the application of a paddle wheel instead will easily be comprehended. No special peculiarity in the engine or construction of the boat is involved, with the exception of the longitudinal tube or passage. The most approved practice in steam engineering can, therefore, be applied in the construction of the engine, and its application to driving the propelling wheel or screw. There can be no doubt that the displacement taking place through the tube will obviate side swells. How far power can be economically applied to propulsion in this way can only be settled by actual trial. The inventor desires to enlist capital to enable him to make such a trial and to compete for the prize offered. Those who would like further information or to correspond with the inventor, Dr. L. Heins, can address him till the 20th May at 36 Platt street, New York, care of Sprague and Close, or, after that date, at his residence, Brunswick, Ga.



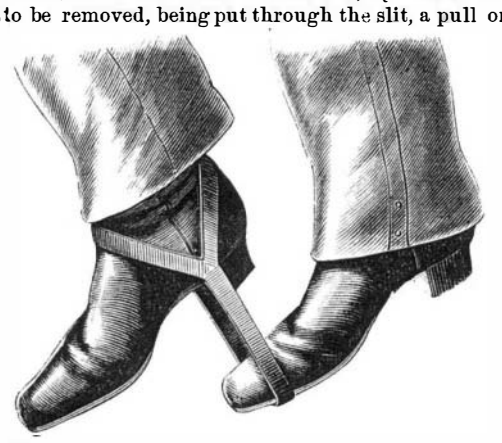
HEINS' METHOD OF PROPELLING CANAL BOATS.

Chinese by Telegraph.

The managers of a telegraph company in China have recently solved the problem of how to transmit telegraphic messages in Chinese. At first sight the difficulty of an alphabet which is made up of about fifty thousand distinct characters appears almost insurmountable, but the obstacles have been overcome, and A-Fat at Hong Kong encounters no more difficulty, in communicating with A-Chum at Shanghai, than does Brown with Jones under similar circumstances. The plan adopted is this: Some few thousands of the more common Chinese characters are cut on wooden blocks after the manner of type, and on the reverse end of each is a number cut in the same way. Now A-Fat, having handed in his message written in Chinese, the native clerk selects in order the corresponding blocks from the case, and prints off the numbers on their reverse. This he hands to his English colleague, who telegraphs the numbers to the destination desired. Here the reverse process is gone through, and, the numbers having been taken from the cases, the characters are stamped on paper, and thus A-Chum is put in possession of the cherished wishes of A-Fat through the medium of his native language.

POCKET BOOTJACK.

This device consists simply of a leather strap about an inch in width and eighteen inches in length, which is united at its ends, and slit as shown. The foot, upon which is the boot to be removed, being put through the slit, a pull on the



part, B, by the other foot, is claimed to readily remove the boot. If this invention is effective, there will be a large demand for it from travelers and others, who desire an article of this kind which occupies only a small space. Patented Feb. 8, 1870, by Charles Brown, Charlotteville, Va.

Iron Telegraph Pole.

A galvanized iron pole comprising two sections jointed together where the upper one, which is the smallest, screws into the top of the other, has its base set in a box and packed in with cement, concrete, etc. The box is to be planted in the ground for holding the pole erect. At the top of the box is provided a hub, with arms, extending laterally to the edges of the box; and at the upper end of this section is a ring or collar, for the connection of the upper ends of guys whose lower ends are connected to the lower end of the lower section; while near the center the said guys are stretched over the two ends of a cross tree used for bracing the section. Below the collar is a screw threaded ring or collar, employed for forcing the collar upward for straining the guys; and below this ring is another hub, with arms for straining another set of guys, which are connected at the lower ends of the hub and at the top of the upper section. These guys may be tightened like the others by an adjustable collar, or they may have swivels for tightening them. Any number and lengths of sections may be used, and the tube constituting the body of the pole may be made round, square, or otherwise, or of any size. One or more tubes in each section may be used side by side, and confined together by a band or hoop for strengthening one by the other. If the pole is not to be more than fifteen or twenty feet high, one section of tube will do, with one set of guys; but if higher, it will be better to have two sets. The box may have a bottom, as shown in the drawing, for holding the lower end of the pole resting on and connected to it, and the lower hub and arms may be attached to the top of the box by straps of iron bent over and nailed to it. But instead of having the box for holding the pole, it may be mounted on a stone or other suitable base or planted in the ground. The arms at the top of the pole for holding the insulators may be insulated by means of an inverted cap, mounted on the top of a wood, glass, india rubber, or other block, placed in the top of the upper tube. In the top of this cap is placed a composition point to which a copper rod or wire is attached with its lower end anchored in the ground to convey away the electricity and prevent the pole from becoming a conductor. This copper conductor may be placed inside of the pole, if preferred. If, however, it be desired to use the pole as a conductor, the insulators at the top will be dispensed with, and in this case the hub at the top of the pole will serve both as a support for the message wires and for tightening the guy rods, which may then be connected to it.

The message wire supporter and cap which cover the insulators may be made of malleable cast iron or other suitable material. The cap is made larger than the cup, at the top of the pole, which holds the insulators and fits over it so as to shed rain.

Mr. Alfred Homer Trego, of Philadelphia, Pa., is the inventor.

Substitute for Lithographic Stone.

A substitute for lithographic stone has been introduced. For the purpose in question, the inventor takes a block or slab of slate, or other material, which is to be made perfectly smooth and true, and then coated with glue or other gelatinous matter. In some instances he adds a solution of silicate of soda and bichromate of potash, or uses this solution alone. The coated block is exposed to sunlight, and then washed to remove the superfluous coating; and after being dried, it is ready for drawing or writing upon. The ink or pigment is prepared with albumen or other gelatinous matter, dissolved in a saturated solution of bichromate of potash, either with or without chrome alum, and with a small quantity of ivory black, to render the ink visible. The picture is drawn upon the prepared block with this ink, and exposed to sunlight, and afterwards the surface is covered with gum or glycerin. The block is then ready for the printer. Another method consists in using, as substitutes, metallic substances, as tin, brass or zinc, preparing them first by rubbing with a solution formed of one ounce of hydrochloric acid, one fourth of an ounce of zinc, and one dram of glacial acetic acid. After the plate has received the impression from the stone or wood in an ordinary lithographic press, or by means of a "transfer," the ink thereon is dried by heating the plate, which is afterwards plunged while still hot into cold water; this latter operation being supposed to confer permanency upon the impression. The ordinary ink is used in this process, which appears to consist, in reality, of "soldering" the design on the plate and burning it in.

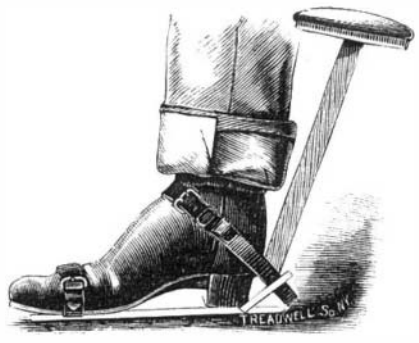
Underground Rope Tramways in Germany.

The coal mines of the Saar are situated in a hilly district, and this configuration of the country, and the circumstance that the coal measures come up to the surface over a large area of the district, is singularly favorable for adits and levels, instead of shafts; and although a great part of the coal beds above these adits is already exhausted, they are still used to bring the coal on the surface to the smaller valleys. The wagons or tubs used to be drawn by horses in trains of 15 to 20; but this system is now abandoned, and the wagons are drawn by stationary steam engines, after being fastened to long ropes or chains. There are now three different systems of rope tramways in use. The counter rope system has been adopted in one mine, in an adit 1,024 fathoms long, and in another, 1,420 fathoms; it is also used at a third mine for a length of 800 fathoms. This system consists of two engines—one in the mine, one outside, alternately pulling a train of 30 to 36 wagons out or in, when the end rope runs freely off the winding drum, which is for a time disconnected from its engine. The tail rope system, used also at some collieries near Newcastle and Durham, has been adopted in two other places, for 1,400 and 1,020 fathoms of length respectively. With this system a single steam engine is required, which drives two drums in opposite directions—one hauling in the rope, the other paying it out, when the rope at each end of the tramway is carried round a sheave back to the engine. The train being connected to one branch of the rope, and the empty wagons to the other branch, the engine pulls the loaded train out, and drags the empty one into the mine, and is reversed after every journey. The endless rope system is in use elsewhere, and consists in one engine driving a rope continuously round in the same direction, when loaded trains are fastened to it on the way out, and empty trains on the way in. This system is adapted to short distances. Instead of attaching the wagons in trains, it is now found more useful to fasten them singly at certain intervals, so that the tipmen have time to empty one wagon over the screen before the next arrives. The advantages of the single wagon system are too conspicuous to be overlooked, but it is only in connection with the endless system they can be fully developed. The difficulty of the increasing dead weight of the rope for great distances must be overcome by the adoption of auxiliary engines, and the regulation of their speed can be effected by the use of telegraphs and self acting brakes and governors. The underground transport through the road ways has always been a heavy item in collieries. There is much still to be done in this matter, and the use of electric telegraphic apparatus in connection with underground transport is at present far too little valued.

POTASH FROM CORN COBS.—Dr. Herbert Hazard suggests the use of corn cobs for supplying potash, the ordinary sources of which are rapidly failing. He states that the average yield of corn cobs is 7·62 parts of carbonate of potash in 1,000 parts of the cobs, which is nearly twice as much as the best specimens of wood furnish. The present corn crop of this country will supply 15,400,000,000 lbs. of cobs, from which 115,500,000 lbs. of potash can easily be manufactured.

GARDENER'S STOOL.

This invention, recently patented by Eliphalet Whittlesey of Mullica, N. J., is intended to afford a convenient support to gardeners in such operations as, without it, would require continued stooping.



The stool is strapped to, and carried by, the foot, leaving the hands free, so that whenever the operator desires he may sit upon the pad or seat. The same device is applicable as a milking stool, and perhaps for other purposes where it is desirable to avoid the fatigue of continued or often repeated stooping.

The *Engineer* states that the oxyhydric light has not proved a success in Paris, and that it has been discontinued in the public lamps on the Boulevard des Italiens.