

## CRAWSHAW'S SOLE-CUTTER.

The cutting of a boot or shoe-sole should not be left to the chance of accident from hand cutting, and as it is the part of boot which is most exposed to wear, it should be cut as neatly as possible round the edge to prevent the necessity of much after trimming, which has a tendency to separate the fibers of the leather. Again, where so many boots and shoes are made as in our large factories, speed is a great desideratum; and a simple economical device which will produce soles with great rapidity, is the subject of the present engraving. It is seen in perspective in fig. 1, a table, A, contains a false frame, C, which can be elevated by the treadle N, and links, O; and the leather, B, that is to be cut into soles (being first reduced to strips exactly as wide as the sole is long) is placed on the table or the frame, A, and on the platform or table, C.

A standard, D, rises from the frame, and carries a vertical bevel wheel, F, that is rotated by a crank handle E. This bevel wheel gears into a horizontal one, G, that has upright cogs on its inside, and is placed on the central vertical shaft, I, the lower end of which carries the knife guide, K, seen in Fig. 3. Immediately under the wheel, G, on the shaft, is a projection having a bearing in its end, that carries a cogwheel, H, which gears in the teeth on the inside of G, and which is connected to the cutter J, by an inclined rod, J; the rod being allowed sufficient play in its bearings, a former, or pattern, M, provided with a series of pegs or projections at regular distances apart and near its edge, is placed on the leather; and it is connected to I by a screw and joint, so that I is free to move in it and yet support the pattern, M, whose outside edge must be exactly the shape of the sole desired to be cut. Fig. 2 is a detached view of M, it has a toothed elevation on it, into which the wheel I, on the knife shaft, gears; and by its motion it accommodates the knife to the shape of the pattern; a raised edge, a, around the pattern keeps the knife close to it. This pattern is adjustable and can be turned to cut each sole toes and heels alternately, and can be placed in any position to avoid a bad split in the leather.

The operation is very simple; the leather is pulled on to the platform or table C, and the foot being pressed on the treadle, the table is elevated and the leather pressed against the under surface of the pattern, when the projections enter a little way into the leather and hold it just under the pattern to be cut. These marks on the leather left by the projections are not a deterioration but a positive advantage, as they form well defined and regular marks for the insertion of the pegs. The handle F is now moved round and the knife which has been pressed in the leather or the elevator of C, passes quickly round the outside of the pattern cutting out the sole with great rapidity. The foot is then relieved from the treadle N, and C, falls down to the level of the table on A, and the sole being removed, the leather is again advanced on to C, and another sole cut in the same manner. This useful and truly excellent machine is the invention of John Crawshaw, of Rochester, N. Y., and was patented July, 20, 1858, any further information may be obtained of Crawshaw, & co, Rochester N. Y., or the agent, Alanson Brown, New York.

## CLARK'S BURGLAR'S ALARM.

To awake with your throat cut, as somebody somewhere says, is anything but a pleasing sensation, especially when the mutilation is accompanied by the loss of money, valuables and clothes; yet every newspaper contains some account of housebreaking or hotel-robbing or murdering for plunder. In this country, where the immense size of the hotels prevents the chambers and passages being

properly guarded, it behoves every traveler to be provided with some means of speedily and securely fastening his chamber-door and of being awakened at the first attempt that may be made to force it open, in order that he may defend himself from thieves and murderers. To this end, J. G. Clark, of Augusta, Ga., has invented the "burglar's alarm" shown in our illustration. It is an admirable little device. Fig. 1 shows its application to a door, by a flatserrated strip of metal, F, which is placed between the top of the door and the frame; the alarm, of course,

the whole device will drop to the ground; the end of the piece, B being first stopped by the floor, the momentum of A will be enough to cause it to strike B forcibly on the top of the caps, and discharge the three pistols; thus frightening the burglar and awakening the slumberer.

The above, however, is not the only use to which this ingenious device may be applied, as will be seen by reference to Fig. 2, which shows it in use as a common pistol; the barrel A being held in one hand, care being taken to have the end of A project beyond the hand, and B being struck with the other, the caps can be exploded and the powder and balls discharged. It may be used with percussion-caps alone, without powder, and it can be carried in the waistcoat pocket. This device is so simple and convenient that no traveler should be without one. It was patented June 7, 1859, and any further information may be obtained by addressing Mr. Clark, who has an office at No. 14 Wall-street (room 23), in this city.

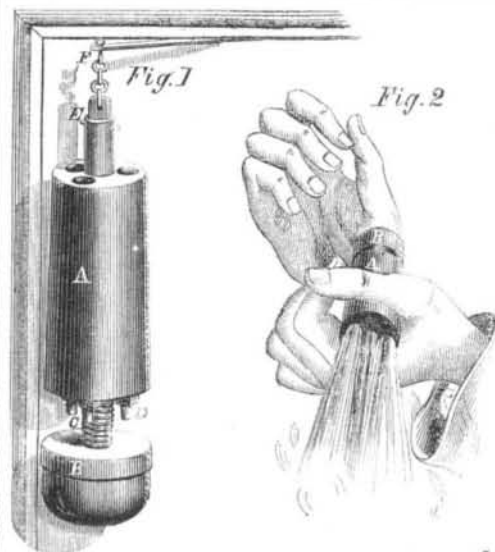
## IMPROVED SUBMARINE CABLE.

This cable, the invention of Joseph Rogers of London, is shown in our engraving, where Fig. 1 is a view of one strand, and Fig. 2 an end view of the same; a is a strand of small copper wire; b, is a coating of gutta-percha, which it is preferred to apply at two or more separate operations, or, should it be preferred to omit the coating of gutta-percha, in place of it, a coating of other insulating material, such for example as india-rubber, may be applied. c, are plaited bands laid longitudinally, each composed of five or other convenient number of strands or fibrous material, by preference, hemp; these bands are secured by the twine d, bound round it either spirally or by preference in the manner shown; e, e, are yarns of hemp or other fiber plaited over the longitudinal bands, and applied by an ordinary plaiting or braiding machine. In the specimen shown, eight separate bundles of yarns are employed (four passing round the cable in each direction), and each bundle is made up of about a dozen small yarns, but this may be greatly varied. In some cases, in places of securing the longitudinal bands by binding with twine as above described, the longitudinal bands are applied as plaiting proceeds, and the plaiting then serves to secure the bands.

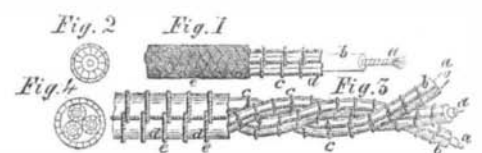
Before applying the fibrous bands and yarns to the covered wire or strand, they are saturated with a composition formed by mixing 8 parts of rosin, 1 part tallow, 8 parts of linseed oil or boiled oil (preferring boiled oil), and 2 parts patent driers; these materials are boiled and stirred together until thoroughly mixed. The bands and yarns are passed through the composition while it is kept boiling in a cauldron. The invention, also

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being placed within the room. A, is a cylinder of metal having three barrels or powder chambers bored in it, the lower end of each barrel having a breech, and a nipple D, being placed in it, so that when a cap is placed on D, and the barrels are loaded, the device forms a perfect three-barreled pistol. A hole runs through the center of



the cylinder A, by which it slides on the central rod P, that is suspended from the strip F, and at its lower end there is a piece of metal B, of the same diameter or a little larger than A. When suspended as shown, the cylinder A is kept from contact with B, by a small spring C, around the rod E. If the door is now attempted to be forced open, the strip F will, of course, be loosened, and



consists in producing a submarine electric telegraph cable, containing more than one conductor, by surrounding separately each of the conducting wires or strands, whether covered with gutta-percha or not, with the longitudinal plaited bands, saturated and secured as in the cable shown at Figs. 1 and 2, but without the external plait of yarns, and afterwards laying together the conducting wires or strands thus protected, and again surrounding them with longitudinal plaited bands secured by twine, and saturated with the composition already described; Fig. 3 is a side view, and Fig. 4 an end view of a cable so constructed. a, a, are the conducting strands; b, b, the interior plaited bands; c, c, the twines which secure them; d, d, the exterior plaited bands; e, the twine which secures these bands; the cable thus formed may be further protected by plaiting yarns over it, as before described.

PRICE LIST OF GAS COMPANIES IN THE UNITED STATES AND CANADA.—We print on another page a table from the first number of the *American Gas Light Journal* published by John B. Murray & Co., bankers of this city. We intend to keep our readers thoroughly posted on the formation of new companies, and the value of the various stocks. We shall publish a table about semi-annually, corrected to the date, so that our pages will form a complete index of gas operations commercially and scientifically for the whole continent.