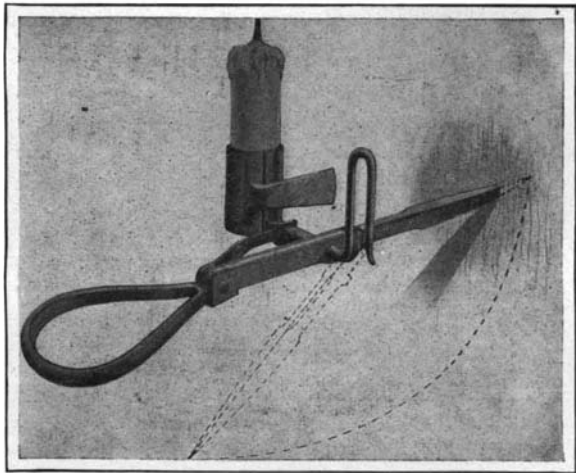




### AN IMPROVED MINERS' CANDLESTICK.

The accompanying engraving illustrates a new form of miners' candlestick, which possesses a number of

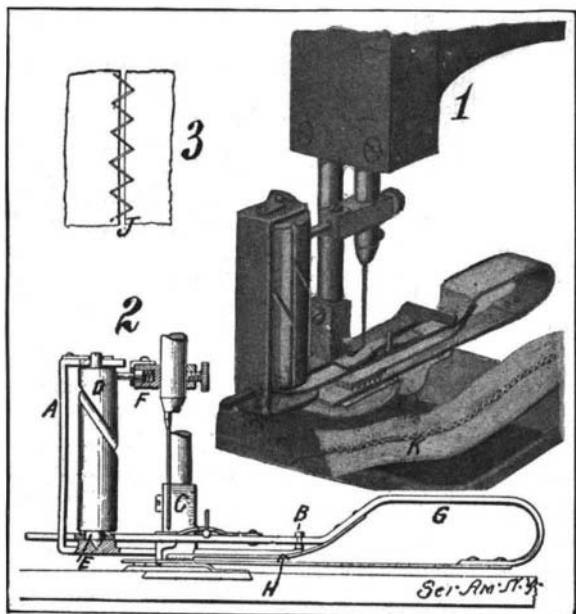


### AN IMPROVED MINERS' CANDLESTICK.

important advantages. The device can be folded into a small space for conveniently carrying it in the pocket; the candle-holder may be adjusted to keep the candle upright whether the candlestick be attached to the wall, ceiling, or floor, and the adjustment also permits of adapting the candle for the use of a right or left-handed miner, as desired. The device consists of a shank provided at one end with a handle. At the other end is a point which is pivoted to the shank. A flat spring on the shank bears against the heel of the point. This heel is formed with flat faces against which the spring bears, so that the point may be held in extended position, as shown by full lines in the engraving, or at right angles thereto, or folded against the handle, the spring holds the point in much the same way as the spring of a knife holds the knife blade. The candle-holder consists of a split tube attached to a rod, which passes through an aperture in the main shank of the candlestick, and terminates in a hook. The rod is formed with an angular portion adapted to be engaged by a spring catch, which locks the holder in set position with respect to the shank. This permits the candle-holder to be adjusted relatively to the shank, to hold the candle vertical when the point is stuck into a slanting wall. By completely inverting the position of the holder, it will be evident that the candlestick will be adapted for the use of a left-handed miner. A patent on this improved miner's candlestick has just been procured by Mr. Otto A. Poirier, of Virginia, Minn.

### ATTACHMENT FOR SEWING MACHINES.

A recent invention provides a simple attachment which can readily be applied to the ordinary sewing machine, and with which various stitches, such as the "briar" or "herringbone" stitch, may be produced. Briefly stated, the attachment provides a means for shifting the work laterally under the needle, so that a zigzag stitch is produced, which may be used for binding down a cord, for connecting two pieces of insertion, and the like. A clear understanding of the operation of this appliance may be had by referring to the accompanying engraving. The attachment comprises a U-shaped frame A, having a short upper horizontal member and a long lower horizontal member

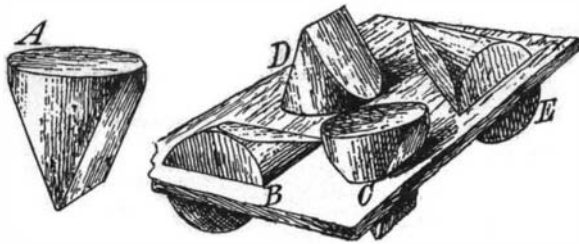


### ATTACHMENT FOR SEWING MACHINES.

which terminates in a pair of jaws B. The latter member is provided with an apertured lug C, adapted to receive the presser-foot bar of the machine, and a set-screw is threaded through the lug into the bar to firmly hold the bracket in set position. Journaled vertically in the bracket A is a barrel D, which at its lower end is formed with an eccentric cam E. The barrel at opposite sides is provided with straight vertical grooves extending the length of the barrel, and a pair of spiral grooves which connect the vertical grooves. Attached to the needle bar of the machine by means of a set-screw is a block F, from which a spring-pressed pin projects. The latter is adapted to engage the grooves in the barrel. As the needle bar descends, it travels down one of the vertical grooves. It will be observed that at the lower end of each spiral groove a flange or projection is formed, which separates the upper wall of this groove from the upper length of the vertical groove into which it runs. On the downward stroke of the needle bar the pin slips over this projection, but on the upward stroke it is caused by the projection to enter the spiral groove, and thus rotate the drum through half a revolution. When this occurs, the cam E, acting upon the bar G, causes the latter to shift, and a spring arm H connected to the bar G, and provided with a toothed portion engaging the work, moves the latter to one side under the needle. The next stitch will thus be laterally offset, and when the needle bar again moves upward, the pin engaging the second spiral groove in the barrel D will return the work to its original position. A sample of the work done by the machine is shown at J, Fig. 3. It will be noticed that this shows two separate pieces uniformly spaced apart and connected by the stitch. A finger on the end of a leaf spring attached to the bar G serves to keep the two pieces of the work at the proper distance apart. This finger may be raised by a bolt when it is desired to lift it out of the path of the work. Shown at K, Fig. 1, is a sample of the "herringbone" stitch used in laying a cord on a piece of material. The inventor of this improved sewing-machine attachment is Mrs. Ella D. Harris, of 219 Harrison Street, Brooklyn, N. Y.

### ANSWER TO THE PLUG PUZZLE.

On page 32 of our issue of July 13, we published as a puzzle an illustration of a board formed with four



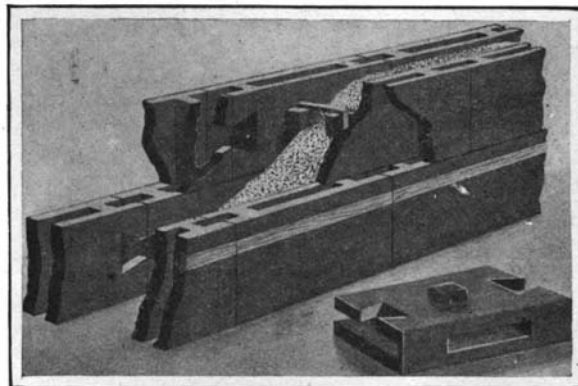
### ANSWER TO THE PLUG PUZZLE.

holes of different shape. The object was to cut a plug which would fit any and every one of these holes. Several replies to this puzzle have been received, suggesting some rather ingenious plugs. In the accompanying illustration we illustrate what is probably the simplest form of plug adapted to fit the holes. The plug as shown at A is in the form of a chisel point. If laid on its side, it will fit the square hole B. The oblong hole C is closed by inserting the sharp end of the plug into it. The circular end of the plug fits the hole D, and if the plug be turned on its side at right angles to its position at B, it will fit the triangular hole E.

### BUILDING BLOCK FOR CONCRETE CONSTRUCTION.

One of the drawbacks to the use of concrete for the walls of dwelling houses is the fact that the material does not prevent the seepage of moisture therethrough into the building. With a view to overcoming this defect, it is customary to form the blocks which are commonly used for the outer face of the wall with air spaces adapted to interrupt the passage of moisture, and arranged to provide ventilating channels through which the air can circulate. This expedient is only partially successful, because moisture will seep through the partition walls at the sides of the air channels. The accompanying engraving shows an improved form of block and building construction adapted to entirely avoid the "sweating" of the walls. It consists in the use of hollow blocks for both the inner and outer walls, so that such moisture as may find its way through to the inner facing of blocks will be carried away by the circulation of air therein. Each block virtually consists of two walls spaced apart by a pair of partitions inclosing between them a central vertical channel, and forming at the end of the blocks two half channels or recesses. These recesses in abutting blocks combine to form complete air channels. A dovetail slot is cut in each end of the inner wall of each block. The blocks are set in position, as shown in the engraving, leaving a space between the inner and outer facings for the concrete. The inner face

of each block is formed with a lug having a vertical slot therein. Tie-bars with downwardly-turned ends respectively engaging the slots in opposite lugs serve to hold the blocks in place while the concrete is deposited between them. The practice heretofore has been to use wooden forms on the inside and outside of the wall during construction but the present invention does away with the expense of this falsework as the blocks are held in place by the tie bars. The concrete enters the dovetail openings in the blocks, thereby permanently keying the blocks in position. If de-

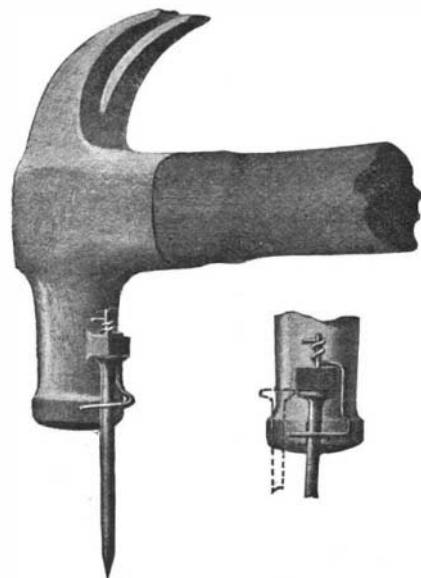


### BUILDING BLOCK FOR CONCRETE CONSTRUCTION.

sired, the inner facing of hollow blocks may be dispensed with, and a falsework used to retain the concrete until it is set. The tie-bars may be bolted to this falsework, so as to keep the outer facing of blocks temporarily in place. Furring strips may be inserted just back of the falsework where baseboards, moldings, etc., are to be nailed to the wall. Where blocks are used for the inner facing of the wall furring strips are built in the blocks as shown in the engraving. The inventor of this improved block and building construction is Mr. Edward J. White, 310 East 35th Street, New York, N. Y.

### AN IMPROVEMENT IN HAMMERS.

It is often a very difficult matter to drive a nail in certain remote and awkward places, owing to the fact that the nail must be held with the hand when the first blows of the hammer are struck, so as to start it into the wood. At such times an attachment, such as is shown in the accompanying engraving, for holding the nail to the hammer head, will prove very useful. The improvement is exceedingly simple, and adds nothing that would hinder the use of a hammer in any other way. It will be observed that the hammer head is formed with a poll, which terminates in an enlarged head or knob. A groove is cut in this knob on the side toward the handle. In the poll just above this groove is a post, which is driven tightly into a transverse opening. The post projects beyond the axis of the groove, so that it may operate as an abutment against which the head of a nail lying in a groove may bear. Coiled about a pin on the post is a spring, which extends downwardly and is formed with a lateral offset overlying the groove. This offset or finger is adapted normally to bear against the face of the knob directly over the groove. When it is desired to apply a nail in the groove, the body of the nail is held in substantially the position indicated in the detail view. The nail is then forced toward the right, passing readily under the spring finger and into the groove. With the nail in position, it is possible to drive it into the wood, even in remote corners or places which can be reached with one hand only. A light blow fixes the point of the nail in the wood, after which an upward movement of the hammer disengages the nail from the finger, whereupon the hammer may be used to drive the nail in the usual manner. The inventor of this improved hammer head is Mr. Soren S. Stuhag, of 204 Union Street, Brooklyn, New York.



### NAIL-HOLDING DEVICE FOR HAMMERS.