

and sucker, may be placed entirely above ground, the cylinder being screwed directly to the pipe when the drive cap is removed. Or the pump may be placed in kitchen or stable, as described under dug wells. If there is danger of freezing, a shallow dry-well may be dug as far down as the first joint in the pipe, when the top length is removed and the pump placed in its stead, the cylinder being down near the bottom. This dry-well for the pump should be curbed and a tight cover provided as described above, but the curbing need not be backed with cement or puddled clay. The third method is to put the cylinder in the drive pipe.

The driven well is sometimes constructed without a drive-point. In this case the open pipe is driven down until driving becomes difficult, when the cap is removed, water poured into the pipe and the soil after being loosened by a drill is removed by means of a sand pump. When the water-bearing layer is struck the pipe is driven a short distance into it and then the hole sunk somewhat further by means of the drill and sand pump.

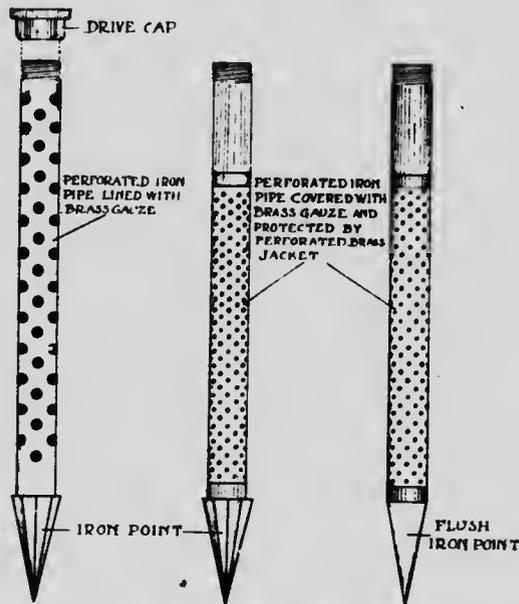


Fig. 4.—Types of well points.

The water from a driven well is turbid at first, but after a time becomes clear, as the finer particles of soil are gradually removed from the areas about the point.

The advantages of the driven well are:

1. Its cheapness.
2. Its sanitary qualities. Surface water cannot reach the point without filtering through twenty to twenty-five feet of soil.

#### DRIVEN WELL IN QUICKSAND.

Sometimes in driven wells the sand is so fine that it blocks up the ordinary drive point. In overcoming this considerable success has been attained by using a special filter attached to the suction pipe as shown in Fig. 5. The filter is