

better suited for some soils. This auger cuts faster than the Tubewell Sand Auger.

### Tools and Materials

Galvanized pipe: 32mm (1 1/4") in diameter and 21.5cm (8 1/2") long  
Hexagonal head steel bolt: 10mm (3/8") in diameter and 5cm (2") long, with nut  
2 hexagonal head steel bolts: 10mm (3/8") in diameter and 9.5cm (3 3/4") long  
2 Steel bars: 1.25cm x 32mm x 236.5mm (1/2" x 1 1/4" x 9 5/16")  
4 Round head machine screws: 10mm (3/8") in diameter and 32mm (1 1/4") long  
2 Flat head iron rivets: 3mm (1/8") in diameter and 12.5mm (1/2") long  
Steel strip: 10mm x 1.5mm x 2.5cm (3/8" x 1/16" x 1")  
Steel tube: 15cm (6") outside diameter, 62.5cm (24 5/8") long  
Hand tools

### Source:

U.S. Army and Air Force. Wells. Technical Manual 5-297, AFM 85-23. Washington, D.C.: U.S. Government Printing Office, 1957.

### Tubewell Sand Auger

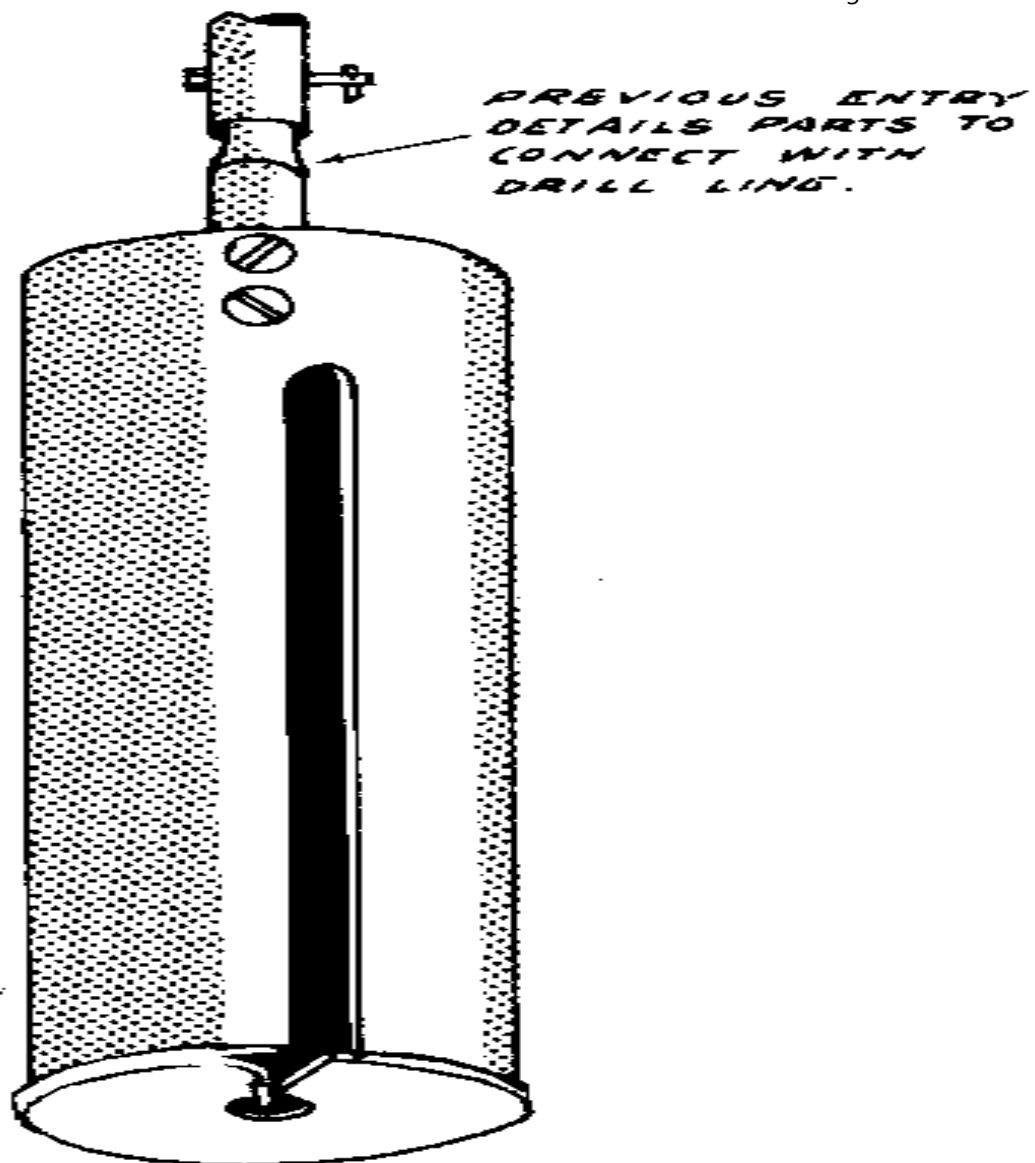
This sand auger can be used to drill in loose soil or wet sand, where an earth auger is not effective. The simple cutting head requires less force to turn than the Tubewell Earth Auger, but it is more difficult to empty.

A smaller version of the sand auger made to fit inside the casing pipe can be used to

remove loose, wet sand.

The tubewell sand auger is illustrated in  
Figure 7. Construction diagrams are given in

fig7x24.gif (600x600)



**FIGURE 7  
TUBEWELL SAND AUGER**

**Figure 8.**

**fig8x25.gif (600x600)**

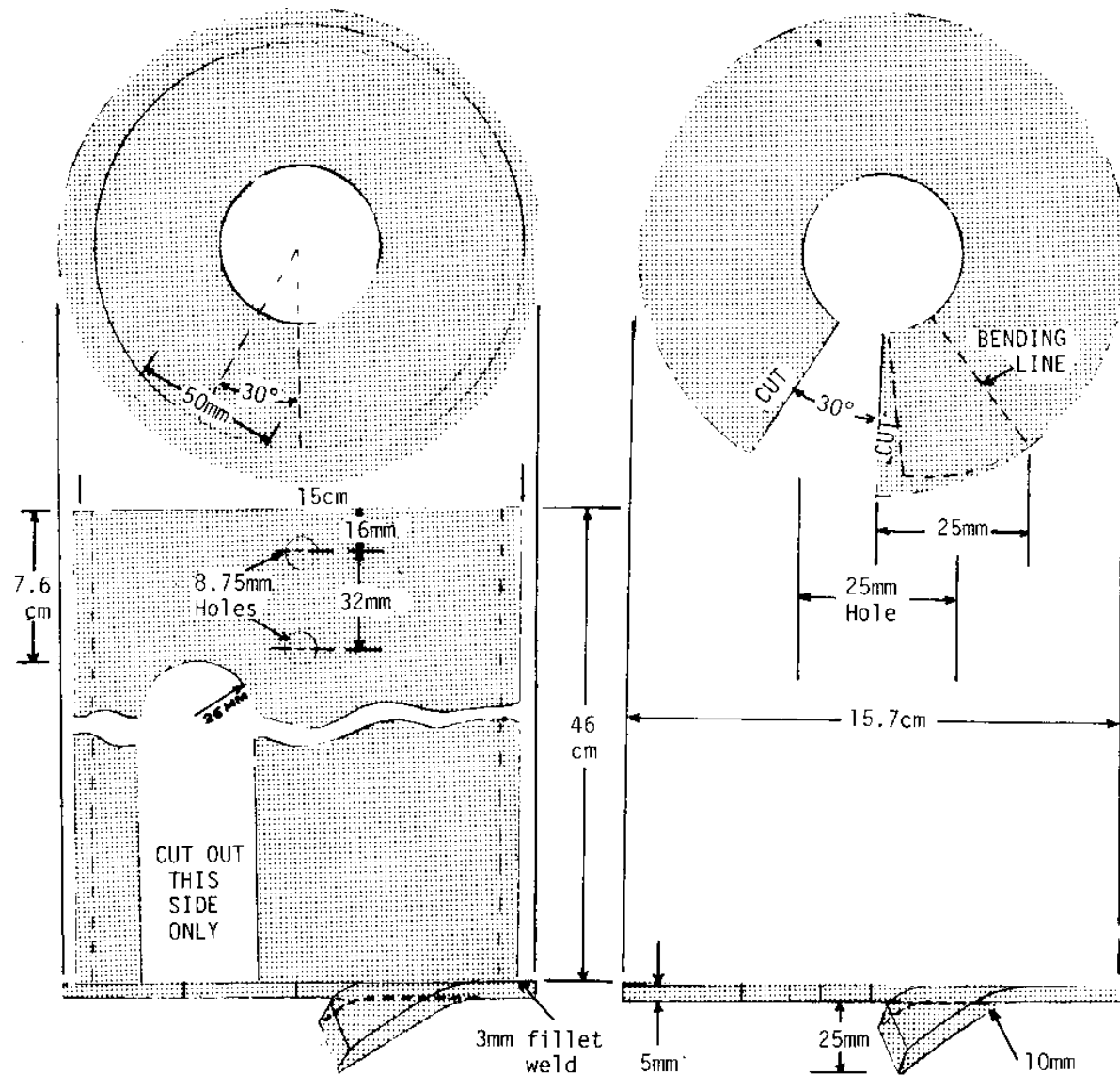


FIGURE 8

## Tools and Materials

Steel tube: 15cm (6") outside diameter and  
46cm (18") long

Steel plate: 5mm x 16.5cm x 16.5cm (3/16" x 6  
1/2" x 6 1/2")

Acetylene welding and cutting equipment  
Drill

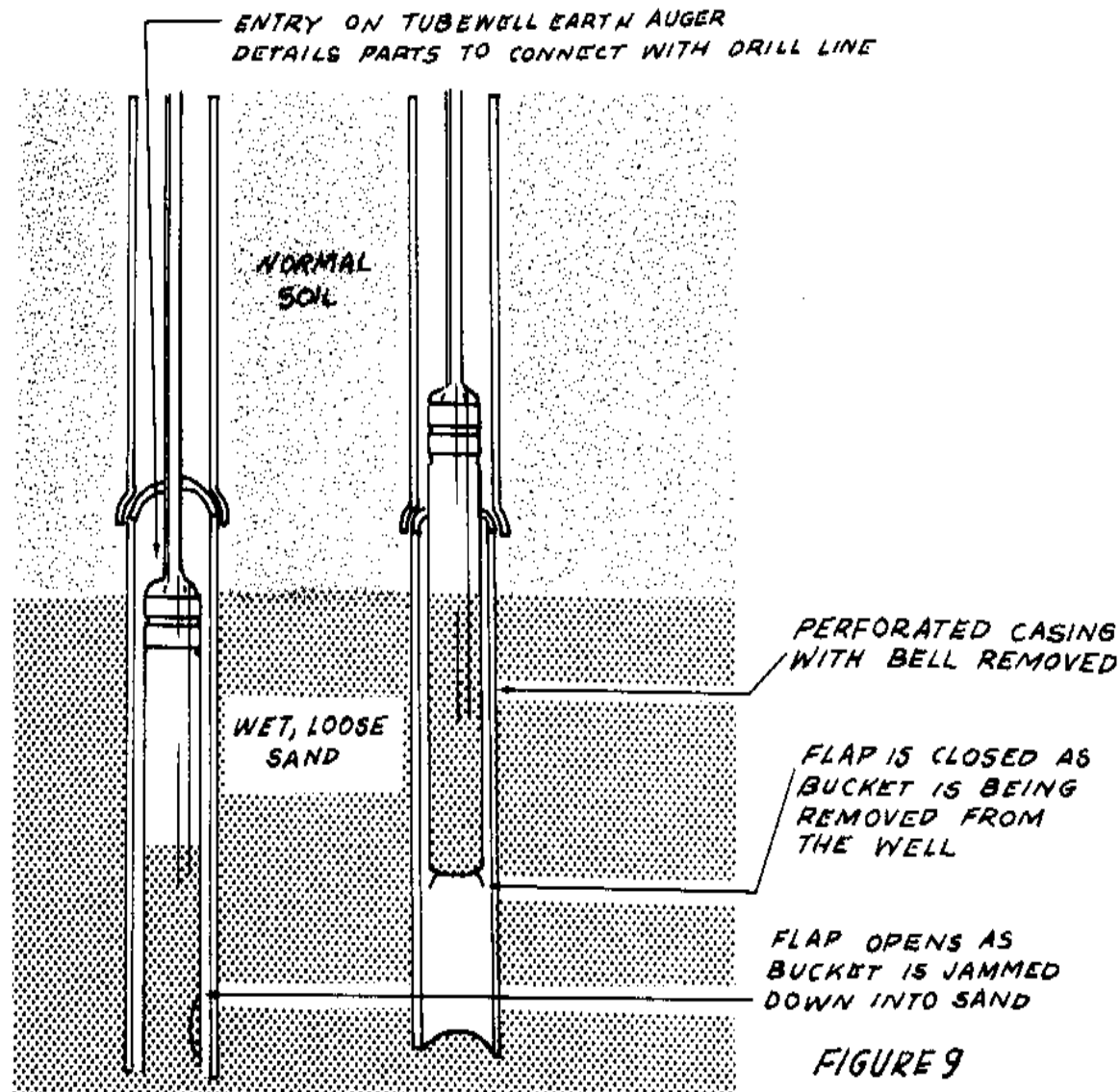
Source:

Wells, Technical Manual 5-297, AFM 85-23, U.S. Army and Air Force, 1957.

Tubewell Sand Bailer

The sand bailer <see figure 9> can be used to drill from inside a perforated well casing when a

fig9x26.gif (600x600)



USING A SAND BAILER TO DRILL FROM INSIDE A WELL CASING

bore goes into loose wet sand and the walls start to cave in. It has been used to make many tubewells in India.

## Tools and Materials

Steel tube: 12.5cm (5") in diameter and 91.5cm (3') long

Truck innertube or leather: 12.5cm (5") square

Pipe coupling: 15cm to 2.5cm (5" to 1")

Small tools

Repeatedly jamming this "bucket" into the well will remove sand from below the perforated casing, allowing the bucket to settle deeper into the sand layer. The casing prevents the walls from caving in. The bell is removed from the first section of casing; at least one other section rests on top of it to help force it

down as digging proceeds. Try to penetrate the water bearing sand layer as far as

possible: 3 meters (10') of perforated casing embedded in such a sandy layer will

usually provide a very good flow of water.

Be sure to try your sand "bucket" in wet sand before attempting to use it at the bottom of your well.

Source:

Explanatory Notes on Tubewells, Wendell Mott, American Friends Service Committee,  
Philadelphia, Pennsylvania, 1956 (Mimeographed).

Ram Auger