Straining tube for a pipe well, consisting of separate rings mutually joined by means of rods and which are separated by spacers disposed between them, located at a distance from each other and the cross section of which has the shape of a wedge tapering in the direction towards the interior of the tube. On the surface of the rings there are grooves for facilitating the entrance of water into the straining tube.
A pipe well is understood to be a ground water well into which ground water flows from a region which is elongated in the height dimension of the well, so that water is obtained in profuse quantity. Depending on the depth of the well and on the abundance of ground water in the soil, several thousand litres, and sometimes even tens of thousands, of water per minute can be obtained.

Straining tubes of the kind mentioned above are known in prior art. It is not necessary that the pipe well is constructed as a straining tube over its entire height: the straining tube sections are placed at those depths where water is obtained. The slit area of the straining tube section should be as large as possible. The width of the slits or gaps is determined by the type of the soil. The rings are tapered so as to make their cross section to be that of a wedge tapering in the direction towards the interior of the tube. The purpose of this is to prevent small stones having a size on the order of that of the gap from being lodged in the gap. Owing to the widening of the gap, any stones that enter the gap pass through and fall to the bottom of the tube. Stones slightly larger than the gap remain on the outside. Their accumulation in front of the gaps may reduce the hole area of the straining tube to such extent that it is no longer possible to obtain water in sufficient amount from the well.

The aim of the present invention is to eliminate this drawback. The invention is characterized in that on the surface of the rings grooves are provided for facilitating the entrance of water into the straining tube. Even if the gap between the rings of the straining tube should be completely blocked by small stones packed closely together, the grooves on the surfaces of the rings still form a multitude of small channels through which water is still able to flow into the tube. Hereby the hole area of a straining tube according to the invention remains adequate even when straining tubes known in prior art would be blocked.

According to an advantageous embodiment of the invention, the grooves are located on the peripheral surface of the rings and they are parallel with the axis of the rings. It has been found that even minor grooving considerably reduces the susceptibility to blocking of the straining tube.

According to another advantageous embodiment, the grooves are located on the upper and lower surface of the rings and they are radial. One achieves thereby an adequate passage for water also remains at those points where a stone has penetrated into the space between the rings of the straining tube.

The grooves need not necessarily extend over the whole width of the ring, because it is most important to ensure passage of the water at the narrowest point of the gap, which is encountered on the outer edge of the rings. Accordingly, in a third advantageous embodiment of the invention the grooves located on the upper and lower surfaces of the rings commence at the outer surface of the rings and they have a length less than the width of the rings.

In order that the straining tube composed of grooved rings might operate efficiently, the shape and size of the grooves should be appropriate in view of the soil type. According to an advantageous embodiment, the shape of the grooves is such that the depth of the grooves is greater than their width. One achieves hereby that no stone which may have entered a groove extends all the way to its bottom, with the consequence that the groove is not completely blocked.

The size of the grooves is, according to an advantageous embodiment, such that the width of the grooves is on the order of 0.1 to 1.0 mm. The depth of the grooves is most advantageously about 1.0 mm and likewise the distance between grooves 1.0 mm. The gap between the rings of the straining tube varies, depending on the diameter of the tube, in the range from 0.25 to 10 mm.

The invention is described in the following by the aid of an example with reference to the attached drawing, wherein:

FIG. 1 shows the straining tube of a pipe well in elevational view with exaggerated presentation of the width of the tube.

FIG. 2 shows the straining tube in cross section along the line II—II in FIG. 1.

FIG. 3 shows the straining tube in elevational view in section along the line III—III in FIG. 2.

FIG. 4 shows the ring of a straining tube according to another embodiment in elevational view and in cross section.

The well shown in FIG. 1 consists of a tube mounted in a hole drilled in the ground, this tube having two straining sections at those depths where ground water is obtained. The strainers have been formed of rings placed one above the other and between which there remain gaps. The rings have been joined with each other and with the pipe part by binding rods.

In FIG. 2 the cross section of the tube at the strainer part can be seen. Three binding rods pass through the rings, said rods being most appropriately made of acid-resistant steel. In order to keep the rings spaced at a distance such that suitable water gaps are left between them, spacers have been mounted on them at the points where the binding rods pass through and, in addition, three other supports. The spacers and supports are equally spaced and in the parts of the upper and lower surfaces of the ring between them, as well as at the corresponding point on the outer circumference, numerous grooves have been formed. For the sake of clarity, only a few grooves have been depicted in the drawing. In actual truth, the grooves are narrower and more closely spaced.

The section reproduced in FIG. 3 shows the longitudinal section of the straining tube passing through the grooves. The wedge-shaped rings have been piled one upon the other and joined together and with the well pipe by binding rods. The spacers and supports having an equivalent height keep the rings spaced at such distance that a suitable water gap remains between them. The placing of the grooves on the rings, on the outer circumference and at a corresponding point on the upper and lower surface can be seen from the figure.

The straining tube ring shown in FIG. 4 differs from the rings in FIG. 3 in that the grooves on the upper and lower surface of the ring begin at the outer rim, do not extend all the way across the ring up to its inner rim. This embodiment is adequate in numerous instances, because if a stone should be wedged between the rings, it remains at the narrowest point of the gap, that is close to the outer circumference. It is then merely necessary to provide this particular point with
grooves, which pass the water through after the gap has been plugged.

It is obvious to one skilled in the art that different embodiments of the invention may vary within the scope of the claims presented farther below. For instance, the design of the rings may be different from what has been said. The number of binding rods and of supports may vary. The number of grooves and their size are not restricted in any way either.

We claim:

1. Improvement in a straining tube for a pipe well, comprising an annular straining section extending in the axial direction of the straining tube, said straining section comprising a plurality of separate rings, rods extending through said rings and securing them to the remainder of the straining tube, spacers mounted between said rings and encircling said rods for spacing said rings apart, said rings having a wedge-shaped radial cross section with the radially extending surfaces of said rings diverging toward the radially outer surface of said rings, wherein the improvement comprises that the surface of said rings are provided with a plurality of grooves and each said groove comprises a groove section located on the radially outer circumferential surface of said rings and extending in parallel relationship with the axis of said rings, and at least one other groove section extending radially inwardly from the groove section on the radially outer circumferential surfaces and located in one of the tapering upper and lower surfaces of said rings.

2. Straining tube for a pipe well according to claim 1, characterized in that the width of the grooves is on the order of 0.1 to 1.0 mm.

3. Straining tube for a pipe well according to claim 1, characterized in that the width of the grooves is on the order of 0.1 to 1.0 mm.

4. Straining tube for a pipe well according to claim 1, characterized in that width of the grooves is on the order of 0.1 to 1.0 mm.