

A. SMITH.
DRAINAGE CASING.
APPLICATION FILED JUNE 2, 1911.

1,062,303.

Patented May 20, 1913.

Fig. 1.

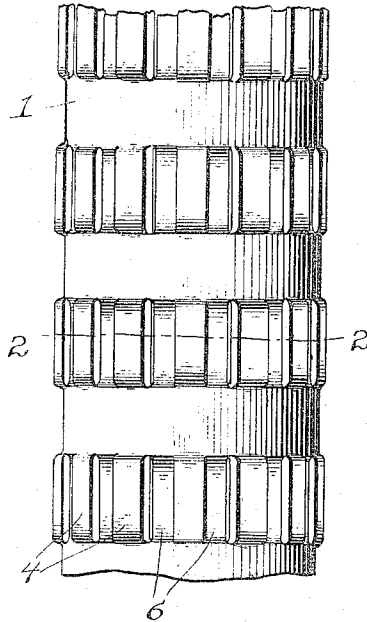


Fig. 2.

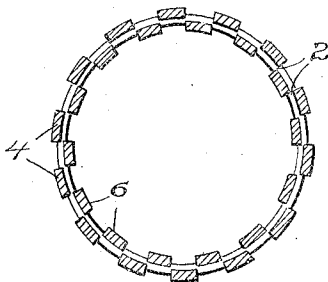


Fig. 3.

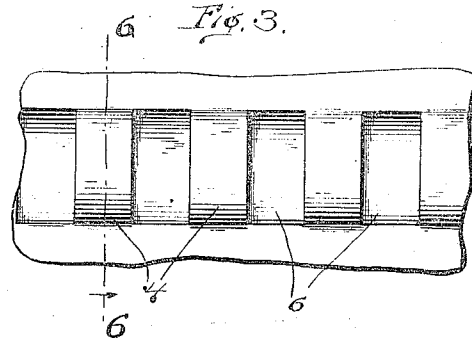


Fig. 4.

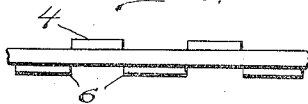


Fig. 5.

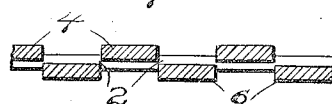
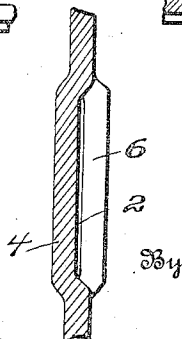


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

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DRAINAGE-CASING.

1,062,303.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed June 2, 1911. Serial No. 630,888.

To all whom it may concern:

Be it known that I, ANDREW SMITH, a citizen of the United States, residing at San Mateo, in the county of San Mateo and State of California, have invented a new and useful Drainage-Casing, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to a new and improved well or drainage casing, and its object is to produce metal plates having a plurality of narrow slots therein to prevent the ingress of fine materials, such as sand, into the inside of the casing.

Another object of the invention is to produce perforated metal for well casing or for tiling in one operation, and to make the metal as smooth as possible considering the method of manufacture, this object being accomplished by distorting the metal of the plate along a series of slits therein, a small amount in each direction, whereby the outside of the casing is made as smooth as is necessary for use in water wells at shallow depths or for use as drain tiles.

In the drawings in which the same numeral of reference is applied to the same portion throughout the several views, Figure 1 is a side elevation of a portion of well casing slotted in the manner herein described, Fig. 2 is a cross-section of such a casing on the line 2—2 of Fig. 1, Fig. 3 is a plan of a portion of a metal plate perforated in the manner herein described, Fig. 4 is a side elevation of the perforated plate shown in Fig. 3, Fig. 5 is a sectional view of the plate shown in Fig. 3, Fig. 6 is a vertical section on the line 6—6 of Fig. 3.

The numeral 1 represents a portion of a well casing which has a series of slots as indicated at 2, there being any desired number of said slots. It is well understood by those skilled in the art that it is not possible to produce slots in the harder metals by the ordinary methods of punching of less width than the thickness of the metal sheet, a punch whose smallest dimension is less than the thickness of the sheet not being strong enough to stand the work. Therefore, to produce the slots herein described, a punch must be used of such extent as to have the necessary strength to enable it to withstand repeated operations. This extent in the smallest dimension is somewhat

greater than the thickness of the plate to be punched, as for example, with a quarter-inch plate a punch one-half inch wide would be ample to withstand the severe usage to which it is subjected. Since it is desired to produce a cheap casing in a single operation, a portion of the metal punched is moved but slightly more than one-half the thickness of the metal plate, the metal between the slots being sheared and punched alternately in opposite directions, thus forming a slot with a movement in the aggregate slightly greater than the thickness of the plate in which the slots are formed. In this operation the entire band of metal across a series of parallel slits is forced alternately in opposite directions and the plate is thereby contracted a sufficient amount to allow the projections to extend beyond the plane of the plate without stretching or distorting the metal of the projections which thus remain substantially the thickness of the plate throughout their extent.

It will be clear that if a flat punch is used, the ends of which are rounded to prevent the cutting of the metal at the ends of the punch, it will be possible to distort the metal of the plate as shown at 4 and 6, one of said set of projections 4 being raised upwardly while the other set 6 is pushed downwardly.

The openings in the plates may be made of any desired width, although of course for use as well casing and for use as tiling, it is contemplated that the slots formed will be sufficiently small to prevent the ingress of fine sand. An advantage of this form of well casing is that the slots formed have substantially smooth walls, so that there is very little chance for rust to set in, and the slots may be made of a given thickness with mathematical accuracy since the opening is exactly determined by the depth of the male and female dies. A further advantage following from the fact that the metal is cut so smoothly, lies in the fact that it is possible to galvanize the casing after the slots have been formed therein without closing the openings, as is liable to occur when the attempt is made to galvanize the so-called "cracked casing" in which rough points project from each side of the openings formed.

While I have shown the sheared and punched portions arranged in annular rows,

with the slots extending longitudinally of the casing, it is obvious that the sheared portions may be arranged in staggered fashion or in any other manner, and also that said sheared portions and slots may extend transversely of the casing or in any direction that may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States; modifications within the scope of the claims being expressly reserved, is as follows:—

1. A drainage casing comprising a sheet of metal having a plurality of slits formed therein by shearing the metal of the plate to form projections whose planes are parallel with the surface of the plate, the outer surfaces of the projections then lying out of the general plane of the sheet in opposite directions on opposite sides thereof, and the inner surfaces of the projections upon one side lying within the plane of the sheet.

2. A drainage casing comprising a sheet of metal having a plurality of slits formed therein by shearing the metal of the plate to form projections whose planes are parallel with the surface of the plate, the outer

surface of the projection then lying out of the general plane of the sheet in opposite directions on opposite sides thereof and the inner surfaces of the projections lying within the plane of the sheet, substantially as described.

3. A drainage casing comprising a sheet metal body having a plurality of parallel slits formed therein by shearing the metal of the plate to form projections extending alternately in opposite directions, each projection being substantially the thickness of the plate throughout its extent and comprising the metal between adjacent slits, the main body of each of said projections being straight and parallel with the plane of the plate to thereby form slots between the adjacent edges of the oppositely extending projections which are of uniform width.

In testimony whereof I have hereunto set my hand this 23d day of May A. D. 1911, in the presence of the two subscribed witnesses.

ANDREW SMITH.

Witnesses:

C. P. GRIFFIN,
HENRY B. LISTER.