Sept. 15, 1931. E. LORENZ 1,823,367

EXCAVATING DEVICE

Filed Jan. 18, 1929

Fig. 1.

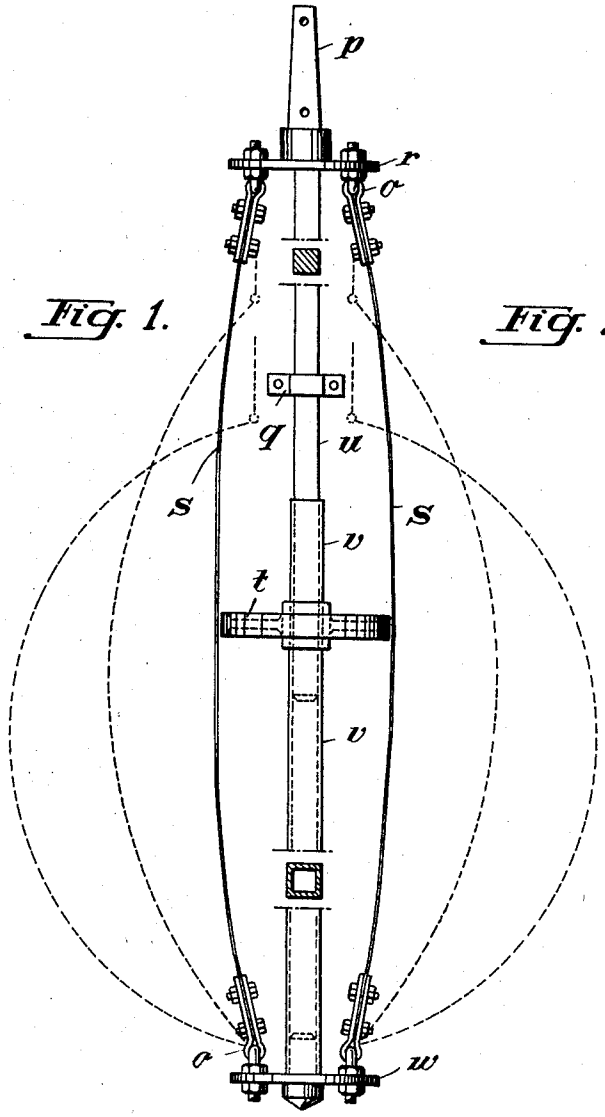
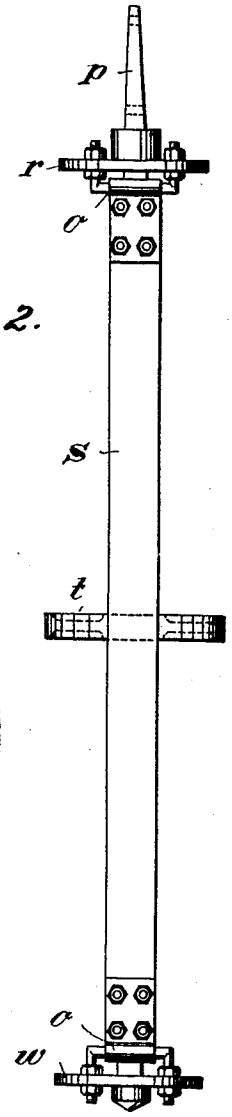


Fig. 2.



Inventor:

Ernst Lorenz

Patented Sept. 15, 1931

1,823,367

UNITED STATES PATENT OFFICE

ERNST LORENZ, OF BERLIN-WILMERSDORF, GERMANY

EXCAVATING DEVICE

Application filed January 18, 1929, Serial No. 333,367, and in Germany December 8, 1927.

My invention relates to a device for excavating the earth underneath a bore-hole to produce a cavity of definite dimensions. By filling this cavity with concrete a socle or a supporting base is produced of a certain defined size giving a sure support for the pile to be erected within the bore-hole. The pile is thus enabled to carry a much greater load than it has been hitherto possible, inasmuch as the pressure of the supporting base on the ground can now be calculated and its limits are known.

The primary feature of my device resides in the arrangement of resilient steel knife-blades kept in contracted position by their own resiliency and adapted to be bent outwards by moving the holders of the blades against each other while they are working underneath the bore-hole.

Other objects of my invention and certain details of construction will be apparent from the following description and the annexed drawings, in which

Figs. 1 and 2 show the new device in two different elevations.

The enlarging boring device comprises two or more resilient steel knives s. The ends o of the knives are articulated to the foot-plate w and to the head plate r. The latter is fastened to the square bar u while the plate w is fastened to the square tube v. The bar u is guided within the pipe v so that the plates w and r may be moved against each other while they are simultaneously rotating. By these means the knives are rotated in a reliable manner. A spider t keeps the knives s apart at a distance greater than the distance of their articulation on the plates r, w. When a downward pressure is exerted upon the prolongation p of the bar u the knives bend outwardly. To the bar u a stop plate q is clamped to limit the lower position of the bar u and the greatest distance of the knives from each other. By adjusting the position of the stop q the size of the socle to be made can be determined in advance. While the boring is going on it is easly perceived when the stop-plate q abuts upon the tube v. The knives are somewhat inclined to their circular path in order to exert a better grip on the earth.

What I claim is:

1. In a device for excavating the earth underneath a bore-hole, resilient steel knife-blades kept in contracted position by their own resiliency, two holders of the knife-blades adapted to be moved at will relatively to each other for bending the said knife-blades outwardly while being underneath the bore-hole, and pivotal connections between the holders and the ends of the knife-blades.

2. In a device for excavating the earth underneath a bore-hole, resilient steel knife-blades kept in contracted position by their own resiliency, two holders of the knife-blades not rotatable against each other, but adapted to be moved at will lengthwise relatively to each other for bending the said knife-blades outwardly while being underneath the bore-hole, and pivotal connections between the holders and the ends of the knife-blades.

3. In a device for excavating the earth underneath a bore-hole, resilient steel knife-blades kept in contracted position by their own resiliency, two holders of the knife-blades adapted to be moved at will relatively to each other for bending the said knife-blades outwardly while being underneath the bore-hole, pivotal connections between the holders and the ends of the knife-blades, and adjustable means on one of the said holders for limiting the relative movement of the holders.

In testimony whereof I affix my signature.

ERNST LORENZ.