

No. 680,803.

Patented Aug. 20, 1901.

J. NAGY.  
CONSTRUCTION OF FOUNDATIONS.

(Application filed Apr. 19, 1901.)

(No Model.)

Fig. I.

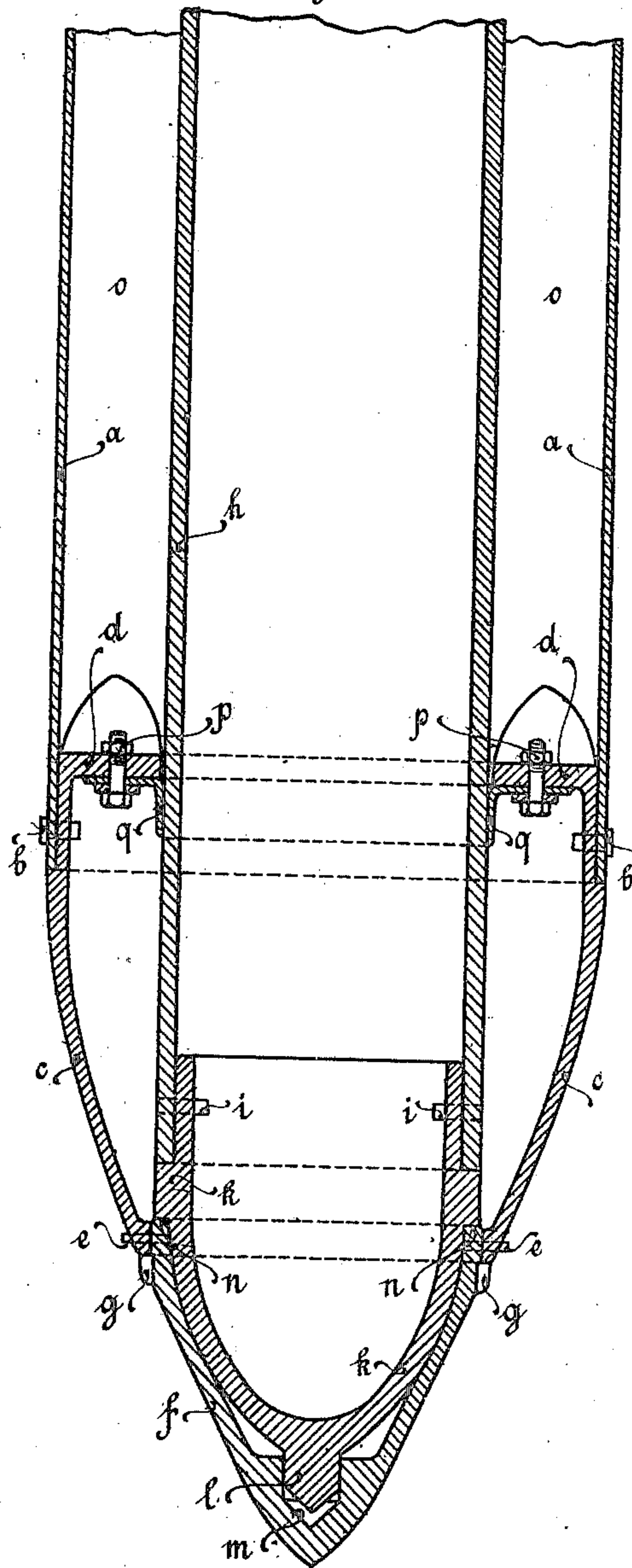
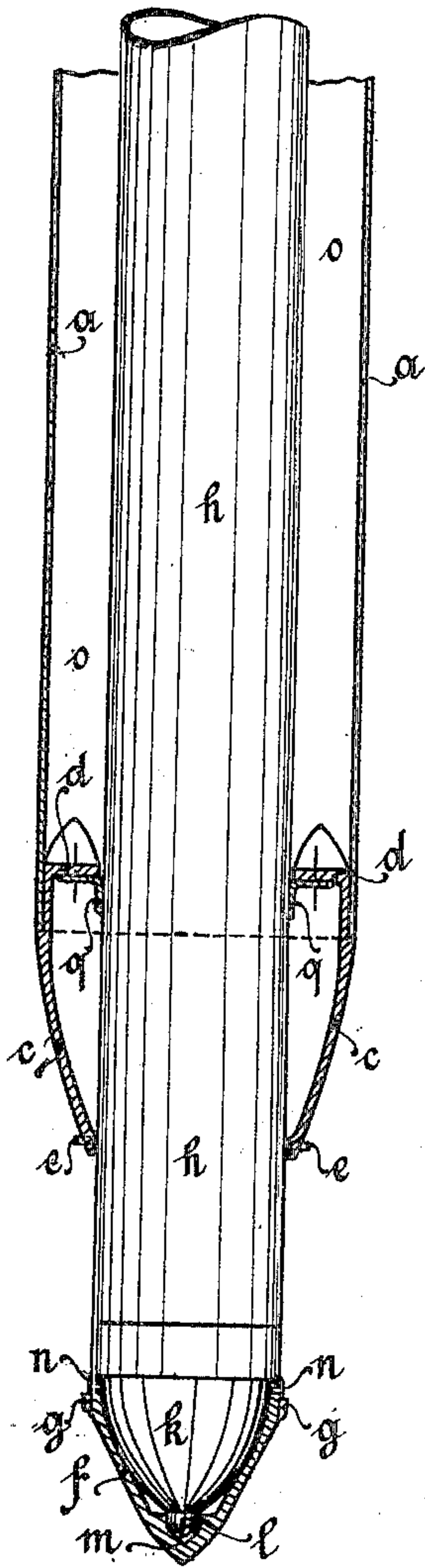


Fig. II.



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JULIUS NAGY, OF NUREMBERG, GERMANY, ASSIGNOR TO VEREINIGTE MASCHINENFABRIK AUGSBURG UND MASCHINENBAUGESELLSCHAFT NÜRNBERG A. G., OF SAME PLACE.

## CONSTRUCTION OF FOUNDATIONS.

SPECIFICATION forming part of Letters Patent No. 680,803, dated August 20, 1901.

Application filed April 19, 1901. Serial No. 56,594. (No model.)

*To all whom it may concern:*

Be it known that I, JULIUS NAGY, a subject of the Emperor of Austria-Hungary, and a resident of Nuremberg, in the German Empire, have invented certain new and useful Improvements in Piles, of which the following is a specification.

The foundations of structures under water by means of iron piles suffer from the great drawback, more particularly when the piles have to stand in sea-water, that by the action of the water, and especially sea-water, a destruction of the piles by rusting takes place very soon, as such piles are as a rule made of wrought-iron or steel tubes. The idea of overcoming this drawback by coating with cement the iron piles of pier-bridges, landing-stages, and the like structures under water has, however, encountered the difficulty of applying these beton material to the piles or posts. The necessary compressed-air method of founding the piles by the use of caissons for the subsequent application of the beton or cement has been found too inconvenient and expensive, while the driving in of piles previously coated with beton is impossible or only possible with considerable damage to the beton covering itself.

Now this invention has for its object a method by which iron piles may be coated with beton in a simple and effective manner after the piles have been driven in. For this object a thin walled pipe of larger diameter than the iron pile to be driven in and provided with a strong pile-shoe closing the lower end of the pipe is loosely driven into the place where the pile is to be fixed. The actual iron support-pile is then let into the hollow part of this pipe until its lower end rests on the said pile-shoe. The arrangement is such that when the inner support-pile is driven farther down the connection between the pile-shoe and the outer pipe is released, so that the pile-shoe now forms the lower end of the (inner) supporting-pile. The annular space between this pile and the outer pipe is protected against the penetration of water by a washer placed on the under end of the pipe, so that the said annular space always remains free from water during the ramming down of the

pile, and also the surrounding earth cannot penetrate into this space. After the iron pile has been rammed to the required depth into the holding-ground the annular space between the outer pipe and the pile and, if desired, also the hollow part of the latter itself is filled with beton, which after hardening firmly adheres to or incloses the surface of the iron pile and prevents any of the destructive influences of the water.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view; and Fig. 2 is a view, on a smaller scale, with the inner pile body or member shown in elevation.

One form of construction of an iron pile adapted for use with this improved method of fixing is shown in the accompanying drawings. The thin-walled outer tube or pipe *a*, which does not need to possess much power of resistance, is firmly connected at its lower end by means of rivets *b* or the like with a cast-iron annular intermediate piece *c*, which has at its top an inwardly-directed flange *d*. The downwardly-tapering intermediate piece *c* is connected with a cast-iron pile-shoe *f* by means of pins *e*, which are not made very strong for the purpose hereinafter described, and its edge rests on shoulders or projections *g*, arranged on the periphery of the pile-shoe. The tapering outer surface of the pile-shoe *f* forms the continuation of the truncated cone of the intermediate piece *c*. The thin-walled outer pipe *a*, closed below in this manner, is then driven into the ground as far as possible. The actual support-pile *h*, formed of strong wrought-iron, is then inserted in this pipe, and its lower end is closed by a cast-iron intermediate piece *k*, firmly connected with it by means of rivets *i*. The said piece *k* is formed at its lower end with a point *l*, which latter fits into a corresponding recess *m* in the pile-shoe *f*, so that in this way the pile-shoe is centered on the iron pile *h*. The said piece *k* also rests, by means of an annular projection *n*, on the upper edge of the pile-shoe.

When the iron pile is strongly rammed into the ground, the pins *e*, which hold the pile-shoe on the outer intermediate piece *c*, are sev-



ered, so that the pile-shoe then forms the armed point of the pile itself. When the iron pile *h* is rammed farther down, its lower end projects through the intermediate piece *c*, while the outer pipe *a* does not share in the downward movement of the pile. In order to prevent the penetration of water into the annular space *o* between the outer pipe *a* and the iron pile *h*, a leather washer or rim *q* is fixed by means of screws *p* on the under side of the flange *d*, which rim or washer on the entrance of water into the intermediate piece *c* presses tight against the outer periphery of the iron pile.

When the ramming of the pile into the ground is completed, the empty annular space *o* is filled up with beton, which in hardening, as is well known, thoroughly adheres to the iron, and thus prevents the access of air and water to the same and consequently rusting.

I claim as my invention—

1. In a pile, an inner cylindrical body, an outer cylindrical body adapted to encircle the inner body, and having its lower end of substantially truncated-cone shape and a pile-

shoe removably seated on said truncated end of the outer body, substantially as described.

2. In a pile, an inner cylindrical body, an outer cylindrical body adapted to encircle the inner body and having its lower end of substantially truncated-cone shape and a pile-shoe removably seated on said truncated end of the outer body, said inner body having an angular flange forming a seat for said removable shoe, substantially as described.

3. In a pile, a central tubular body, a piece *k* closing the lower end thereof, an outer cylindrical body, a member of substantially truncated conical shape at the lower end of said outer body and a removable shoe having its upper edge adapted to seat removably against said inner body and said truncated member, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JULIUS NAGY.

Witnesses:

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