N. G. SCOTT.

CLUSTER PILE.

APPLICATION FILED SEPT. 27, 1920.

1,365,197. **Patented Jan. 11, 1921.**

2 SHEETS—SHEET 1.

Fig. 1.

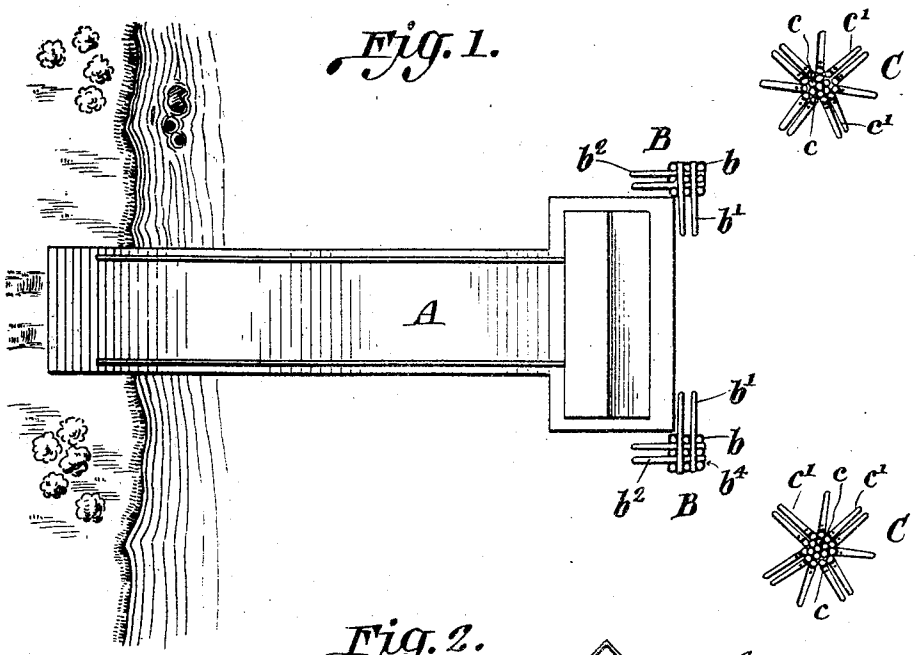


Fig. 2.

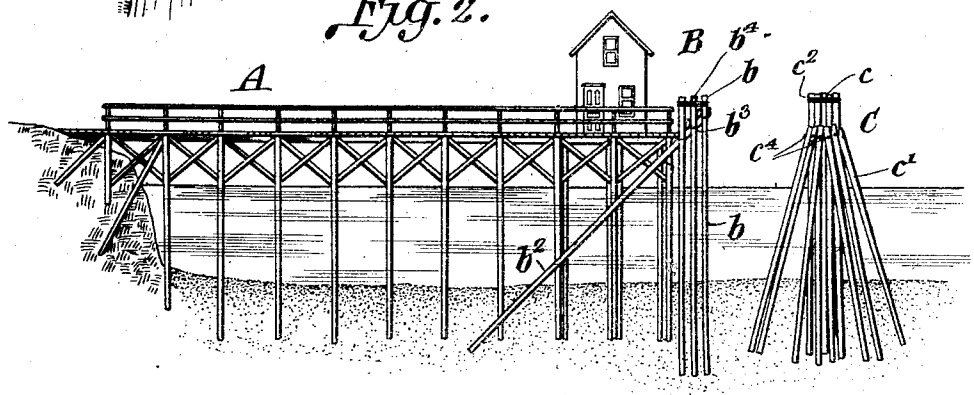


Fig. 3.

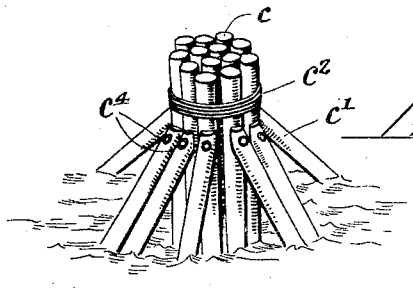


Fig. 4.

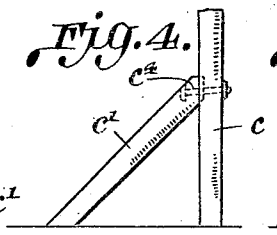
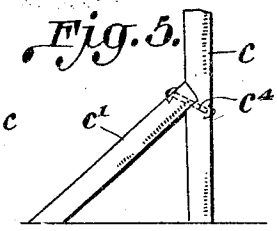


Fig. 5.



Inventor
Nat G. Scott
by his Attorneys
Baldwin Wight

N. G. SCOTT.

CLUSTER PILE.

APPLICATION FILED SEPT. 27, 1920.

1,365,197.

Patented Jan. 11, 1921.

2 SHEETS—SHEET 2.

Fig. 6.

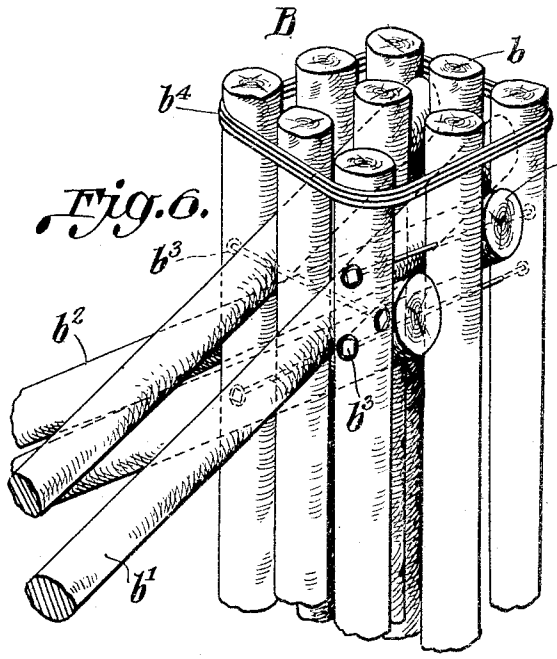


Fig. 7.

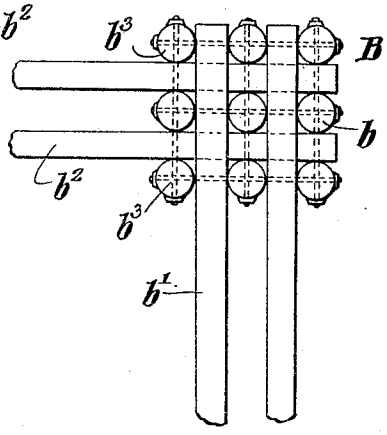


Fig. 8.

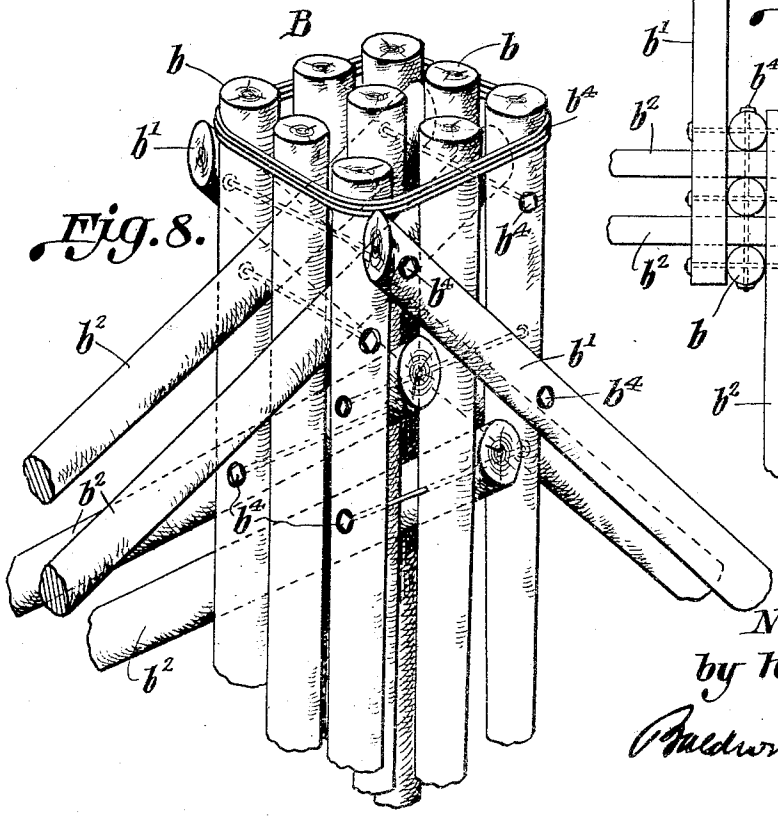
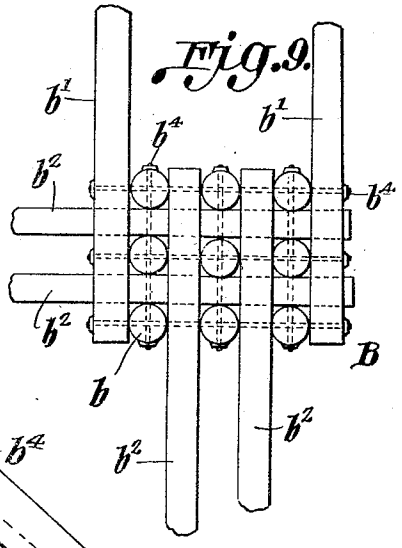


Fig. 9.



Inventor
Nat G. Scott
by his Attorneys
Baldwin & Wight

UNITED STATES PATENT OFFICE.

NATHANIEL G. SCOTT, OF NEW ORLEANS, LOUISIANA.

CLUSTER-PILE.

1,365,197. Specification of Letters Patent. **Patented Jan. 11, 1921.**

Application filed September 27, 1920. Serial No. 412,905.

To all whom it may concern:

Be it known that I, NATHANIEL G. SCOTT, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Cluster-Piles, of which the following is a specification.

This invention relates to what are known as "cluster piles," *i. e.*, bundles of piles or posts driven into a water-bed and used to protect wharves, piers and the like and to provide supports to which vessels may be tied or made fast.

Ordinarily these bundles or clusters of piles are driven in a substantially vertical direction into the waterbed and mutually support each other to a large extent, but experience has demonstrated that in many cases they do not sufficiently do this, but become loose and separate and so do not perform satisfactory service.

My improvements are illustrated in the accompanying drawings, in which,

Figure 1 is a plan view of a wharf, showing cluster piles at the corners thereof, and this figure of the drawing also shows cluster piles arranged some distance from the wharf to which vessels may be made fast;

Fig. 2 is a side elevation of the parts shown in Fig. 1;

Fig. 3 is a perspective view of one form of cluster pile;

Fig. 4 illustrates one way in which the diagonal piles may be bolted to the vertical piles, and

Fig. 5 shows another way of doing this;

Fig. 6 is a perspective view on an enlarged scale, showing more clearly the manner in which the diagonal piles may be interlaced with the vertical piles and secured thereto;

Fig. 7 is a plan view of the parts shown in Fig. 6;

Fig. 8 is a perspective view of another form of cluster pile showing how some of the diagonal piles may be interlaced with the vertical piles, while other diagonal piles are bolted to the outside of the bundle of vertical piles;

Fig. 9 is a plan view of what is shown in Fig. 8.

In Figs. 1 and 2 a common form of wharf or pier is indicated at A. At its corners the wharf is provided with cluster piles B to strengthen the wharf, receive the impact of vessels and to provide means to which the vessels may be made fast. Each cluster pile B is composed of vertical piles b and diagonally arranged piles b', b^2. The vertical piles b are so driven that their upper ends may be separated sufficiently to allow the diagonal piles b', b^2 to be driven by the pile driver between them. The several piles, when fully driven, have their upper ends interlaced as shown. The diagonal piles are bolted to the vertical piles as indicated at b^3, and wire rope or cable b^4 is wrapped around the upper ends of the piles as shown. In this way cluster piles of great strength and durability are obtained, being efficiently braced to relieve strains wherever needed.

Fig. 6 indicates, on a larger scale, the manner of connecting the vertical and diagonal piles shown in Figs. 1 and 2, and it will be observed that the vertical piles are slightly spread apart at their upper ends to receive the upper ends of the diagonal piles, that the vertical piles are firmly held together by the wire rope and that the diagonal piles are securely bolted to the vertical piles.

It is often desirable to provide cluster piles at some distance from the wharf or pier to which vessels may be made fast. I have indicated such piles at C in Figs. 1 and 2. The same arrangement of piles as that before described may be employed, but the drawings show a modification, in which the vertical piles c (Fig. 2) are arranged close together and the diagonal piles c' have their upper ends bolted at c^4 to the vertical piles. The vertical piles are bound together at their upper ends by a wire rope c^2. This construction is shown in perspective in Fig. 3. The bolts c^2 may be arranged horizontally, as shown in Fig. 4, or inclined as illustrated in Fig. 5. In the arrangement shown in Fig. 1 a vessel may be made fast to the cluster piles B arranged close to the pier and also to the cluster piles removed some distance therefrom and thus securely held or the cluster piles may be used to moor vessels in a channel at a considerable distance from the pier. In Figs. 8 and 9 I have illustrated a cluster pile in which some of the inclined piles b' are interlaced with the vertical piles b and some are secured to the outside thereof. In this construction the cluster is braced on three sides instead of only on two sides, as shown in Figs. 1 and 2.

I claim as my invention:

1. The combination with a pier having cluster piles at its outer corners, of a cluster

pile driven some distance from the pier to leave a clear water space between it and the pier, said last mentioned cluster comprising a plurality of vertical piles bound together at their upper ends to form a cylindrical bunch and a plurality of batter piles driven around the bunch of vertical piles, each of the outer vertical piles of the bunch being braced by a batter pile at its upper end.

2. A cluster pile comprising a plurality of vertical piles bound together at their upper ends, and a plurality of diagonally arranged piles having their upper portions interlaced with the upper portions of the vertical piles and bolted thereto.

3. A cluster pile comprising a plurality of vertical piles bound together at their upper ends, and a plurality of diagonal bracing piles, the upper ends of which cross each other, are interlaced with the vertical piles and are firmly bolted thereto.

4. A cluster pile comprising a plurality of vertical piles bound together at their upper ends, and a plurality of diagonal bracing piles some of which have their upper ends interlaced with the vertical piles and cross each other and some of which have their upper portions bolted to the outside of the vertical piles.

In testimony whereof, I have hereunto subscribed my name.

NATHANIEL G. SCOTT.