

S. F. BURBANK.  
 REINFORCED CONCRETE PILE.  
 APPLICATION FILED APR. 8, 1910.

983,677.

Patented Feb. 7, 1911.

Fig. 1.

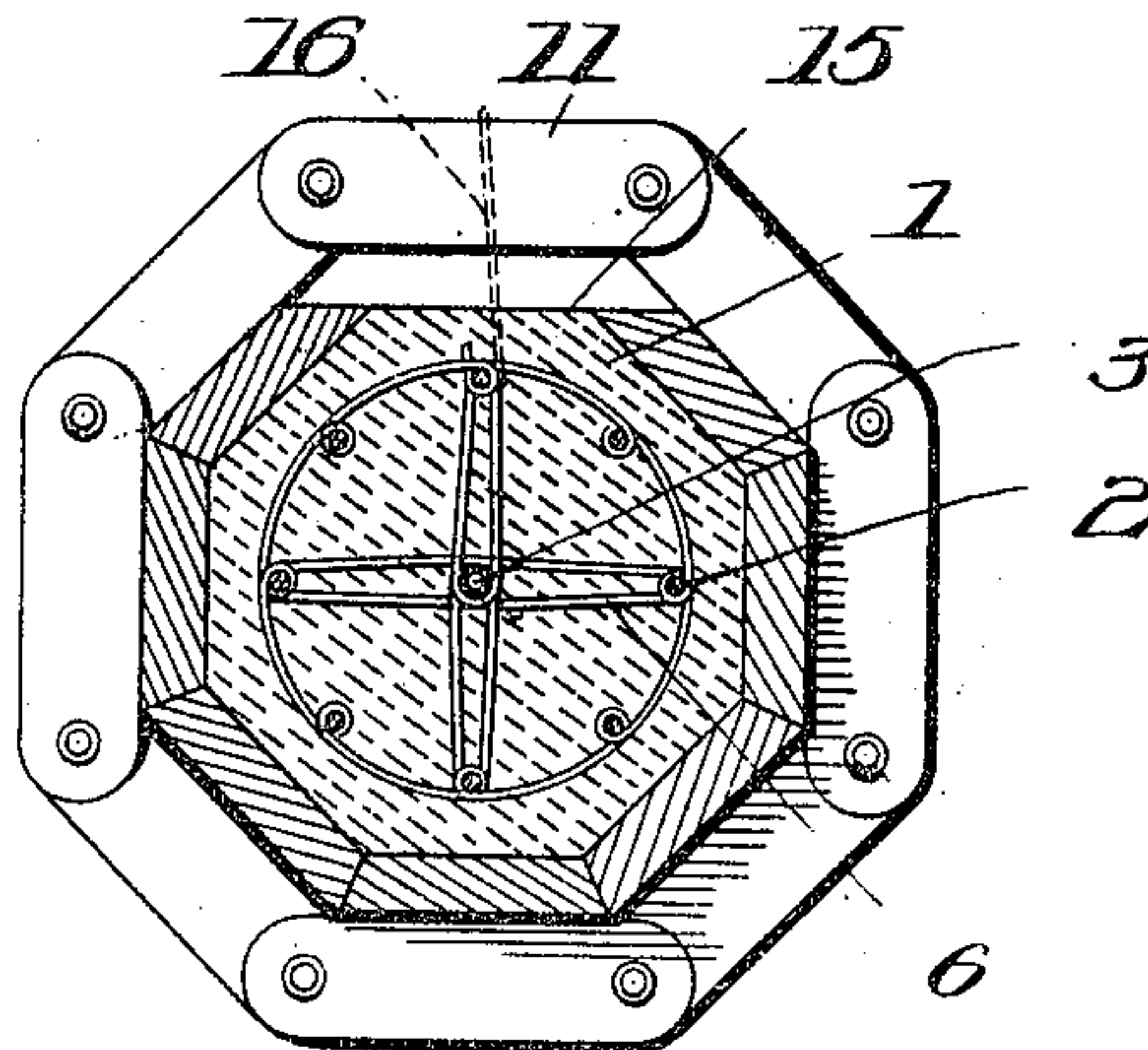


Fig. 5.

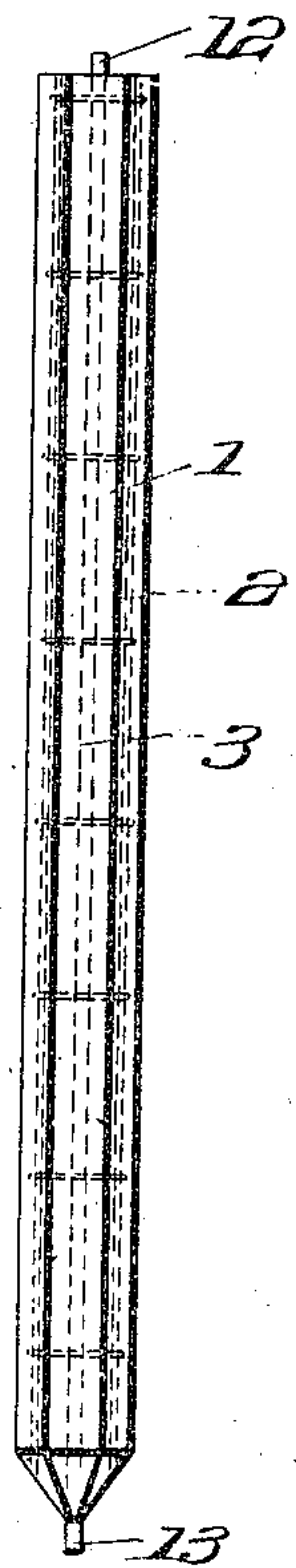


Fig. 2.

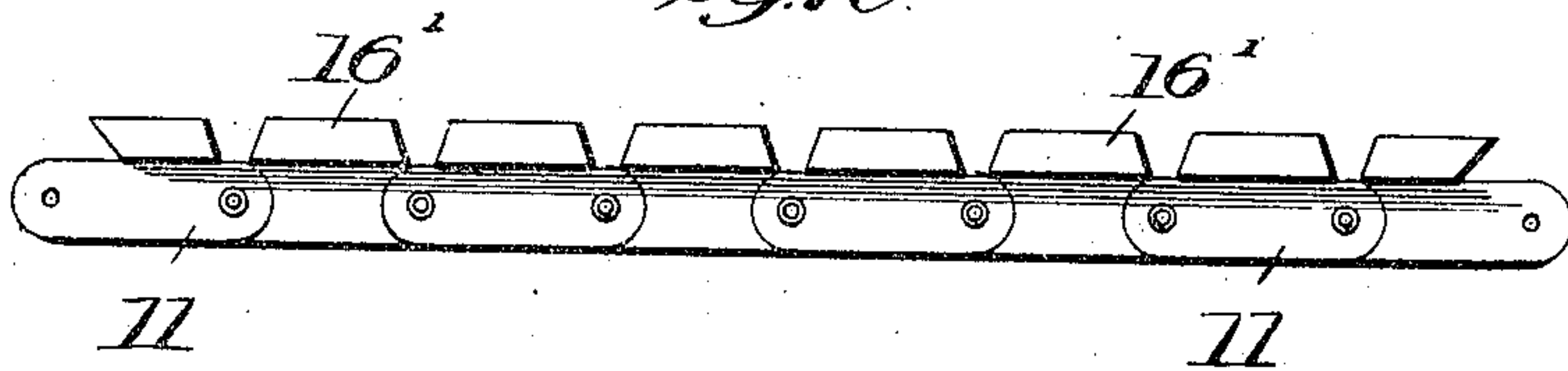


Fig. 3.

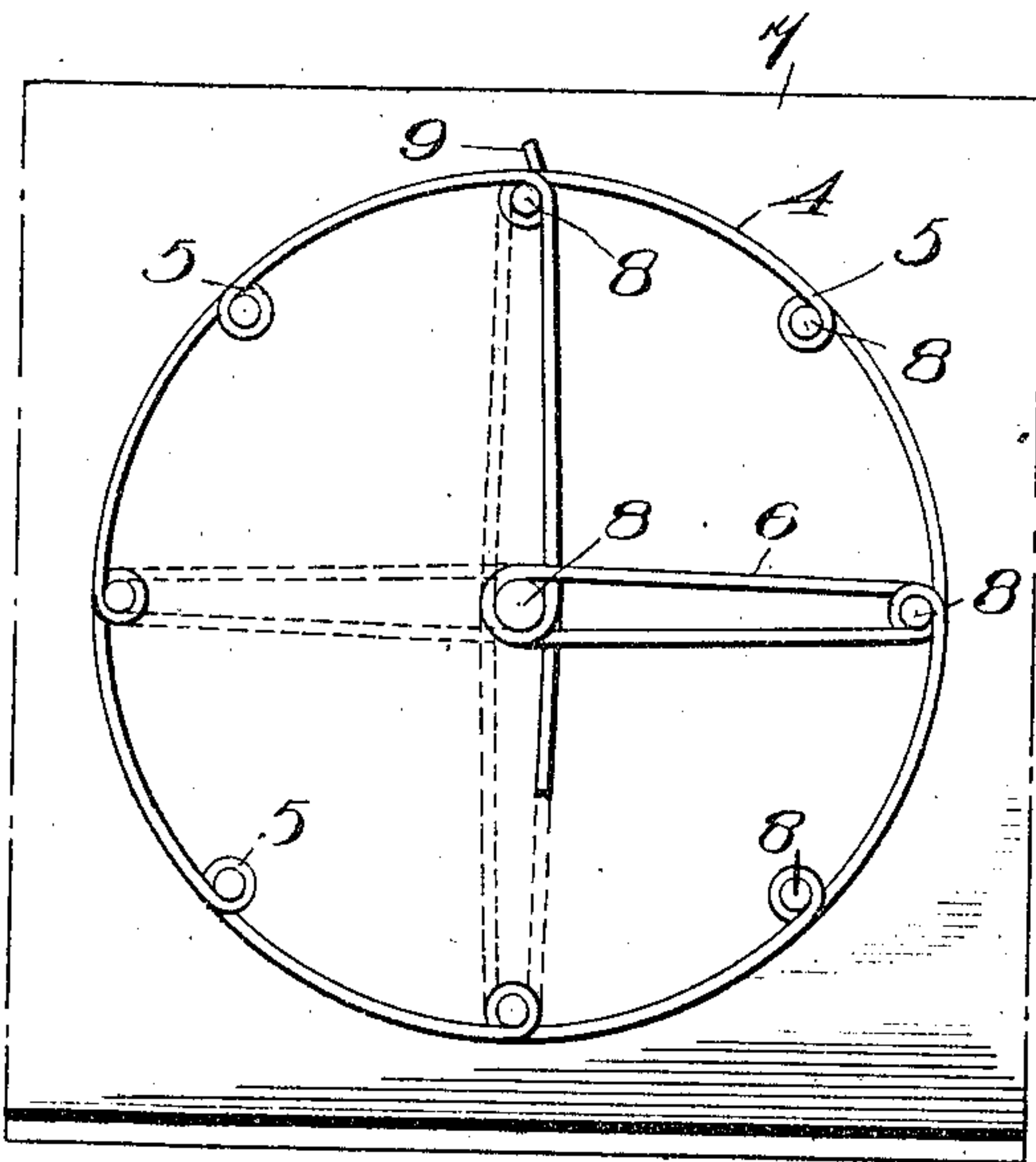


Fig. 4.

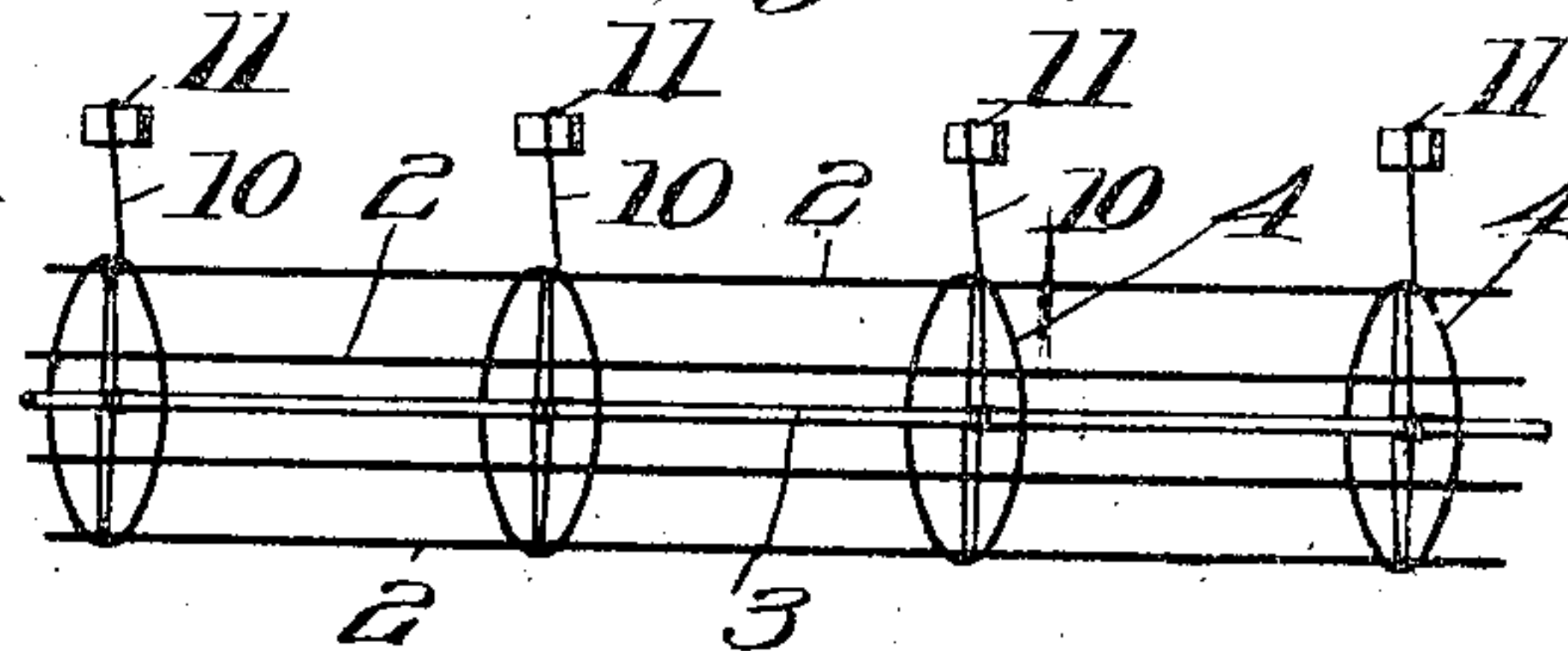
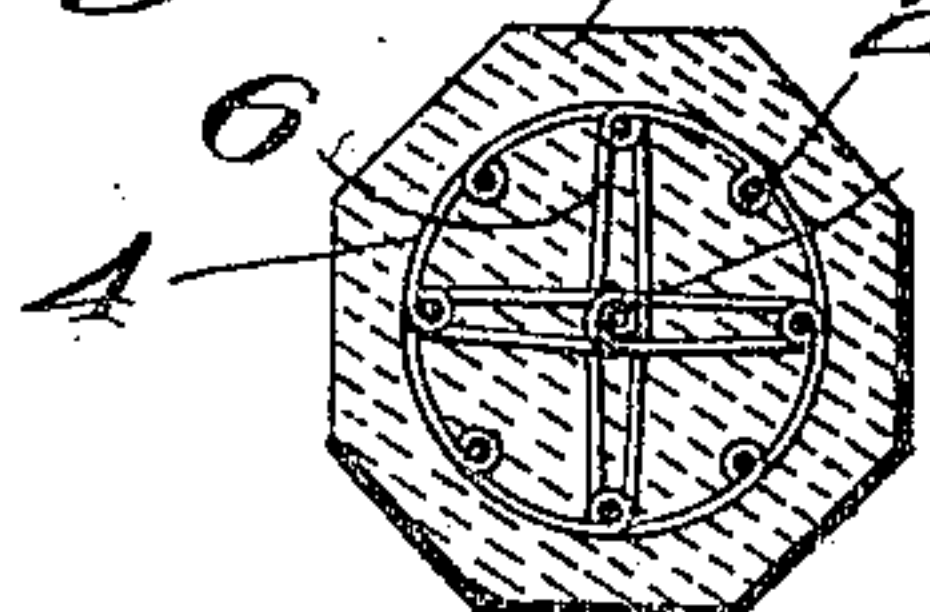


Fig. 6.



Witnesses  
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# UNITED STATES PATENT OFFICE.

STEPHEN FRONTIS BURBANK, OF HONOLULU, TERRITORY OF HAWAII.

## REINFORCED-CONCRETE PILE.

983,677.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed April 8, 1910. Serial No. 554,145.

*To all whom it may concern:*

Be it known that I, STEPHEN FRONTIS BURBANK, a citizen of the United States, residing at Honolulu, Hawaii, have invented certain new and useful Improvements in Reinforced-Concrete Piles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to reinforced concrete piles, and has for its object to produce a pile which will be cheaper and more efficient than those heretofore proposed.

To these ends the invention consists in the novel details of construction, and combinations of parts, all as more fully hereinafter disclosed and particularly pointed out in the claim.

Referring to the accompanying drawings forming a part of this specification, in which like numerals refer to like parts in all of the views:—Figure 1 is a cross sectional view of a mold and a pile made in accordance with my invention; Fig. 2 is a view illustrating the mold when in its flattened out condition; Fig. 3 is a view of a block or former on which the reinforced rings may be wound one at a time; Fig 4 is a diagrammatic view illustrating the reinforcing structure suspended as it would be in the mold cavity; Fig. 5 is an elevational view of the completed pile, and Fig. 6 is a cross sectional view of the same.

1 indicates the concrete material out of which the pile is made; 2 longitudinal rods embedded in the same; and 3 a center rod or pipe passing through the center of the pile.

4 indicates a plurality of rings preferably made of a single piece of wire, and provided with the eyes 5 and the radial portions 6. These rings may be suitably formed one at a time on a board 7 provided with pins 8 of the size of the rods 2; and in order to make said rings one end 9 of the wire is secured to one pin 8, and then passed to and around the succeeding pins 8 to form the eyes 5 and the circle, as shown. After the wire returns to the original pin 8, it is then passed to the center pin, and out to the circumference of the circle one or more times to form the radial portions 6, after which the reinforcing rings are completed and may be removed from the board

7 and suspended, as by the piece 10, in the mold cavity from any convenient portion of the mold, as the link 11.

As diagrammatically illustrated in Fig. 4, a series of these rings 4 are suspended from the mold body; and when in this position the longitudinal rods 2 may be readily threaded through the eyes 5 to complete the reinforcing structure, and if desired a pipe 3 may be passed through the center and permitted to extend beyond the pile at one or both ends, as indicated at 12 and 13.

The entire reinforcing structure being completed and suspended in the mold cavity, as above described, the plastic material may be poured through the opening 15 into said cavity, and when said reinforcing structure is sufficiently embedded in said material the supports 10 are removed and the pile finished off in the usual manner. After the material has set, the mold 16 may be readily flattened out, as indicated in Fig. 2, and the finished pile removed.

It will thus be observed that by the method disclosed I am enabled to make the individual rings 4 at any time and place desired, to store them or to even ship them in bulk to the place of use. The same remarks are true of the rods 2. It is further evident that these rods and rings may be readily and inexpensively assembled in the mold cavity to form the reinforcing structure of any desired strength, so that a minimum of laborers are needed at the place of making the pile to get the said reinforcing structure in position. The pipe 3 is used for jetting purposes, and whether it be a pipe or a rod it is preferred to permit its upper end 12, and sometimes its lower end 13, to project slightly beyond the concrete portion, as illustrated.

The special advantage of making a pile according to my method resides in the fact that the members of the reinforcing structure may be made at any time and place, may be conveniently stored, and may be shipped in bulk to the place of use. An additional and very material advantage also resides in the fact that in assembling the parts of the reinforcing structure in the mold cavity the said parts may be handled one at a time, and readily assembled to give any desired strength by a very few persons. I thus avoid the expensive and tedious operation of building a long, heavy and cumbersome reinforcing structure, which is next



to impossible to handle conveniently and cheaply, and which is also very expensive to properly mount in the mold cavity.

It is obvious that changes in the details of construction, in the arrangement of parts, and in the steps constituting my method may be made by those skilled in the art without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

I am familiar with English Patent #19403 of 1905, and make no claim herein to the construction disclosed in said patent. It will be observed, however, that the ring disclosed in said English patent, is projected from its reinforcing radial arm and from a point on the circumference of the circle located between two of the horizontal reinforcing rods corresponding to those marked 2 in my Fig. 4, or to the pins marked 8 in my Fig. 3. In my invention, however, the wire forming the radial reinforcing arms 6 shown in my Fig. 3, is led directly from the piece 8, and therefore the said wire is efficiently supported, and any cheap labor is sufficiently skilled to radially form the rings with their

supporting arms complete. In other words, as above intimated, it is of the utmost importance in work of this kind, to be able to employ exceedingly cheap labor on the spot where the piles are to be driven; and as the making of my rings does not involve any difficulties they can of necessity be made very easily and quickly.

What I claim is:—

A reinforced concrete pile comprising a body portion having embedded therein a plurality of independent reinforcing ring shaped members each made from a single piece of wire provided with eyes 5, and radial portions 6, projected from and formed by bending said wire into loops at a plurality of said eyes, said radial portions also extending from said eyes to the center of the ring portion; and longitudinal reinforcing rods threaded through said eyes, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

STEPHEN FRONTIS BURBANK.

Witnesses:

FRED LUSON,  
S. A. ANTHONY.