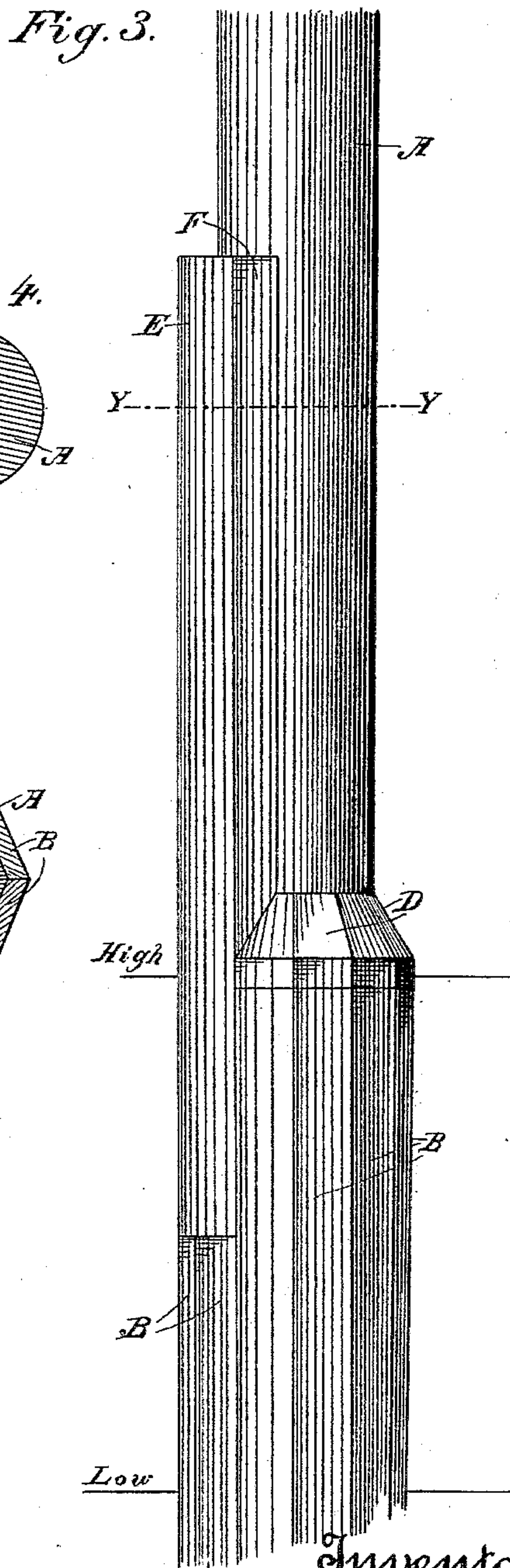
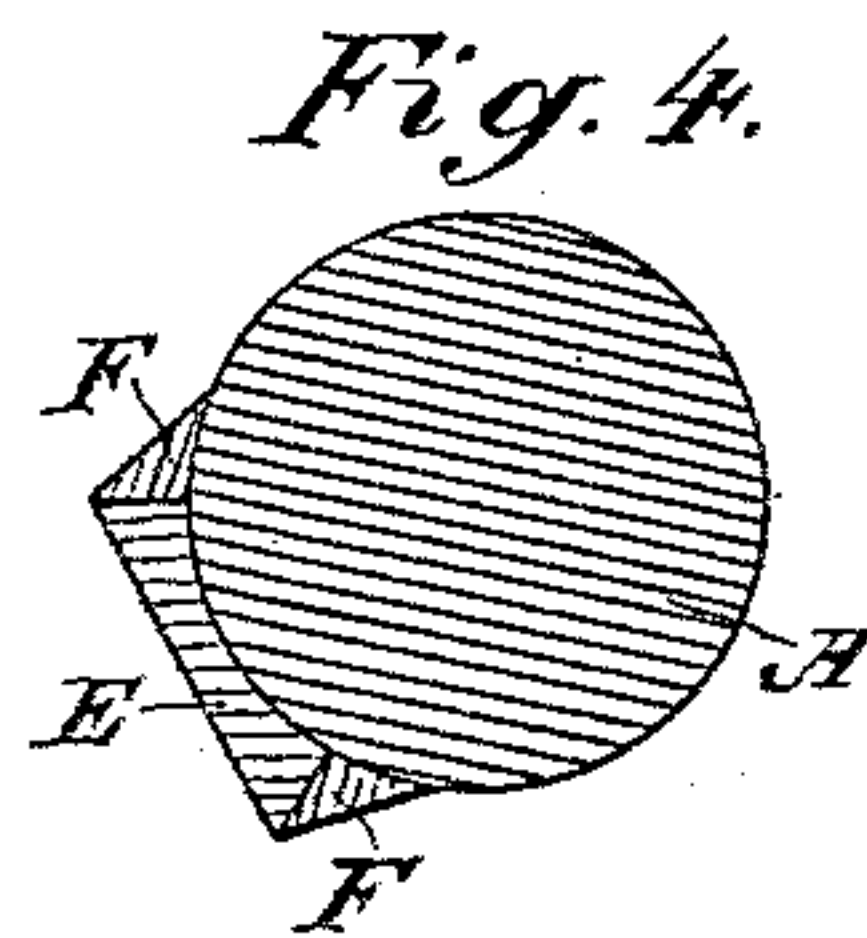
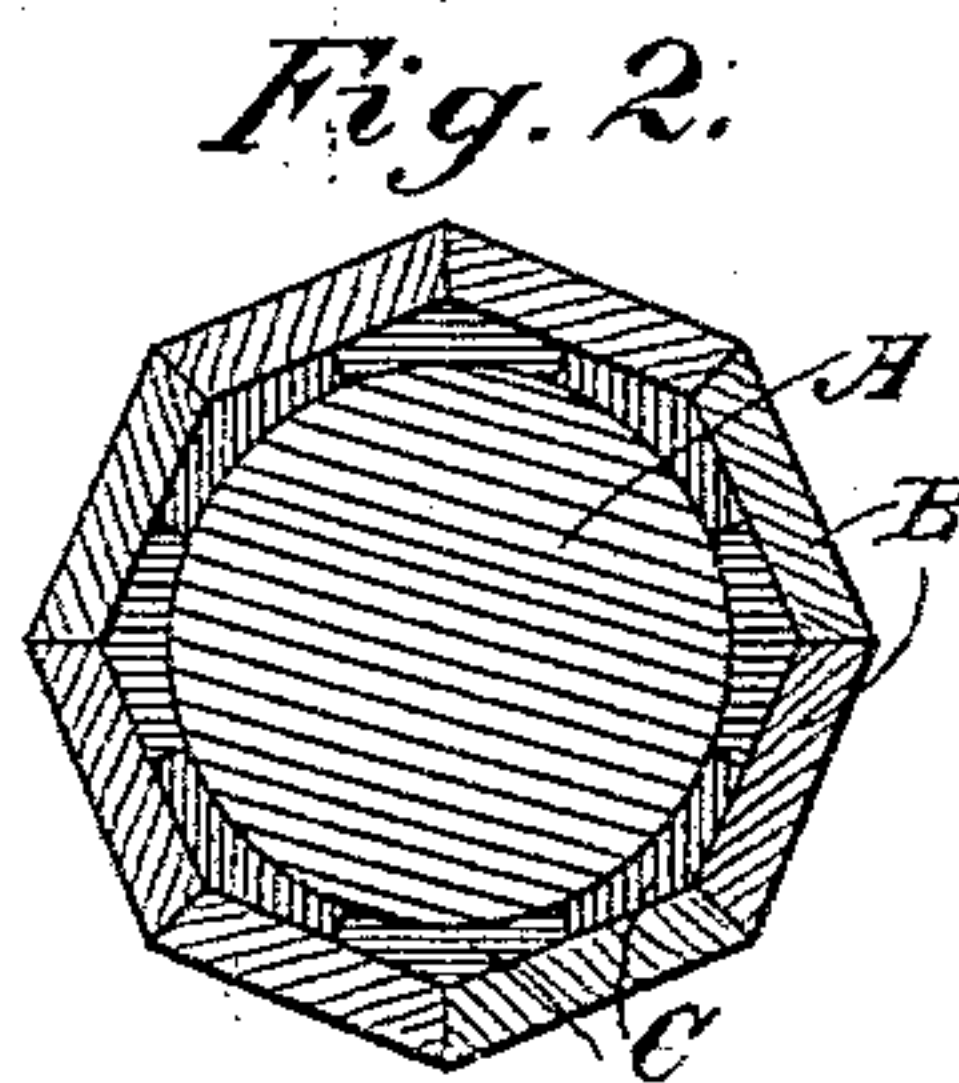
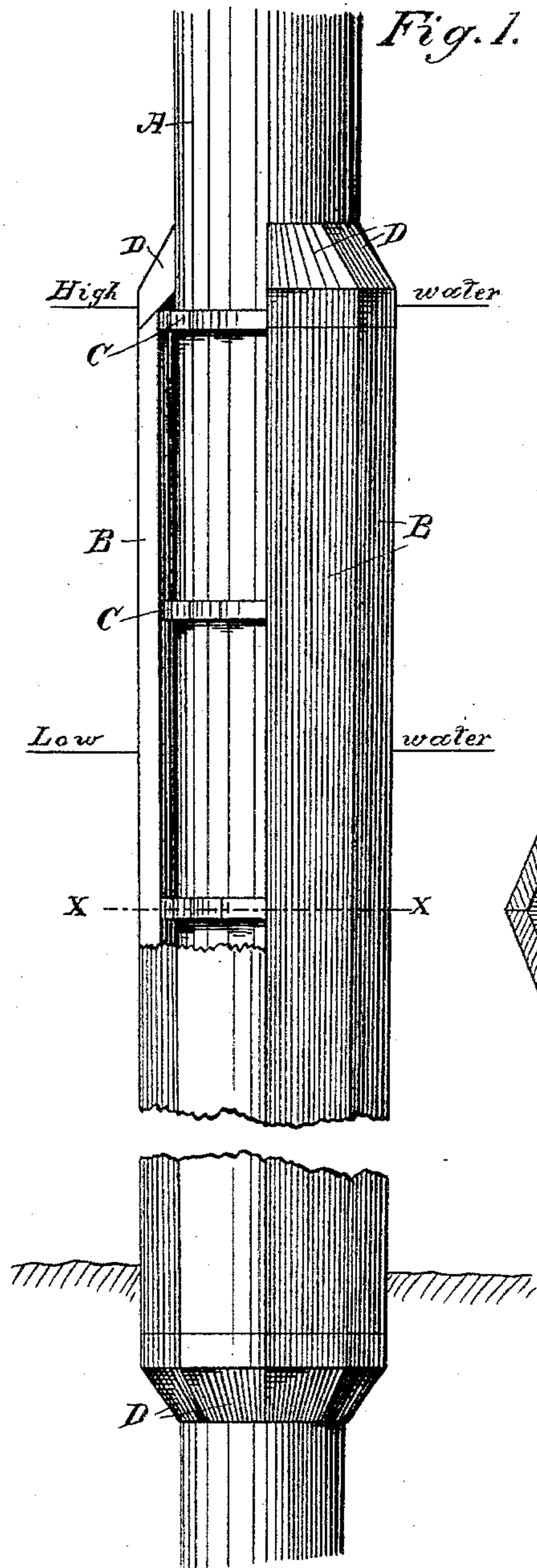


(No Model.)

G. BROWN.
PROTECTING PILES.

No. 381,671.

Patented Apr. 24, 1888.



Witnesses,
Geo. H. Strong.
J. H. House.

Inventor,
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By Duvey & Co.
attys

UNITED STATES PATENT OFFICE.

GEORGE BROWN, OF SAN FRANCISCO, CALIFORNIA.

PROTECTING PILES.

SPECIFICATION forming part of Letters Patent No. 381,671, dated April 24, 1888.

Application filed December 8, 1887. Serial No. 257,357. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BROWN, of the city and county of San Francisco, State of California, have invented an Improvement for
5 Protecting Piles; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved means for protecting piles from the ravages of marine
10 worms and insects. It consists of an exterior casing made of strips of wood or material which will resist the attacks of the insects. This casing is jointed so as to make it water-tight, and is supported at a short distance away from
15 the body of the pile by blocks fixed around the pile at intervals, and the ends are finished out by solid beveled blocks which close them completely. The space within this exterior
20 casing is filled with an adhesive or binding compound. In connection with this I employ an extension or fender upon such piles as are exposed to contact from vessels or exterior
abrading substances.

Referring to the accompanying drawings for
25 a more complete explanation of my invention, Figure 1 is a view of the pile, showing a side elevation of that portion which is incased. Fig. 2 is a transverse section taken through X
30 X, Fig. 1. Fig. 3 is a side elevation showing the fender-extension. Fig. 4 is a transverse section taken through Y Y of Fig. 3.

A is a pile in condition to be driven, and B
35 B are strips made of black-heart redwood, cedar, or wood of any kind prepared so as to resist the ravages of marine insects. These strips are made of sufficient length to reach from a point just below the mud when the pile is driven to a point just at or above the high-
40 water mark. They are made in the form of staves from three to six inches in width and from one to three inches in thickness, the edges being beveled to fit together nearly or quite
45 water-tight, and so as to leave a space of one-half inch or more between the pile and the casing, which space is to be filled with an adhesive or protecting compound, and which will
50 also unite the pile and the casing into a solid body. These staves are held away from the body of the pile by means of blocks C, the inner surfaces of which are fitted to the pile, and the outer surfaces are so formed that the inner
surfaces of the staves will rest upon them.

These blocks C are jointed to the staves, so that when nailed on around the pile they form a complete circle, the outer faces of each two
55 adjacent blocks being made flat, so that each of the staves B will rest upon two of the blocks, the joint between the blocks extending midway of the width of the stave, as shown more completely in Fig. 2. These blocks are secured
60 around the pile at intervals sufficiently near together so that when the staves are nailed to them they are thoroughly secured and supported. The ends of the staves at the top and
65 bottom are slightly beveled, and solid blocks D are fitted to the pile and also to the ends of the staves, so as to form short continuations of them, the upper and lower ends being beveled,
70 so that the blocks when secured around the pile above the upper and lower end of the stave will form a protection and finish for these ends and close them up. The blocks have their
75 ends so beveled that they form a conical shape about the pile, as shown in Figs. 1 and 3. When the staves and the end blocks have all
80 been secured around the pile, the last one of the staves being left out, the space between the pile and the exterior casing is filled with the adhesive compound, after which the final
85 stave is nailed in place and the pile is complete and ready for driving. When the piles are exterior ones which are exposed to abra-
90 sion by vessels, I cut out at the upper end two of the staves B for a distance of about half-way between high and low tide and fit into
95 the space thus cut out an oak or other fender, E, which extends up along that portion of the pile A which is above the water, and is secured to it, so that vessels or other heavy articles which may float near the wharf will not chafe
or bruise the piles. Upon each side of this extension E is fitted a triangular piece, F,
which is securely fastened into the angle, and thus forms a beveled side to the fender-strip. The outer edges of these strips are reduced to
about three-fourths of an inch in thickness and the whole is secured with composition or
galvanized nails.

By this construction I am enabled to protect a valuable pile by an exterior covering
100 which is of less value, and which will effectually prevent marine insects from having any access to the pile.

Having thus described my invention, what I

claim as new, and desire to protect by Letters Patent, is—

1. A protector for piles, consisting of staves made of resisting or prepared wood, said staves
5 being jointed at their edges and supported at a short distance from the pile by blocks secured around the pile at intervals, in combination with a filling of adhesive or protecting
10 material poured into the spaces between the staves and the pile, substantially as herein described.

2. The staves made of wood having their edges jointed, the supporting blocks secured around the pile at intervals and so disposed
15 that the inner faces of the staves are secured to the support by them, and an intermediate filling of adhesive or protecting material, in combination with the beveled end blocks fit-

ting and forming the continuation of the staves and closing the ends thereto, substantially as
20 herein described.

3. The staves jointed and supported upon the series of blocks secured to the pile so that a space is left between the pile and the stave, and the filling of adhesive or protecting mate-
25 rial between the staves and the pile, in combination with the fender or extension with the angular side piece, substantially as herein described.

In witness whereof I have hereunto set my
30 hand.

GEORGE BROWN.

Witnesses:

S. H. NOURSE,
H. C. LEE.