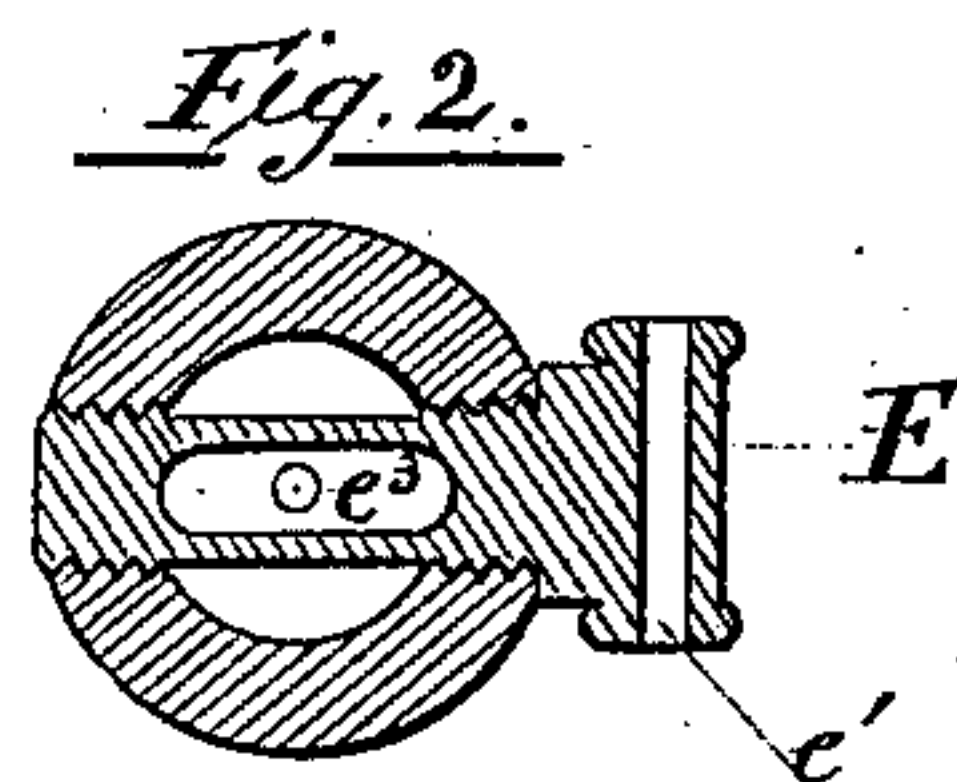
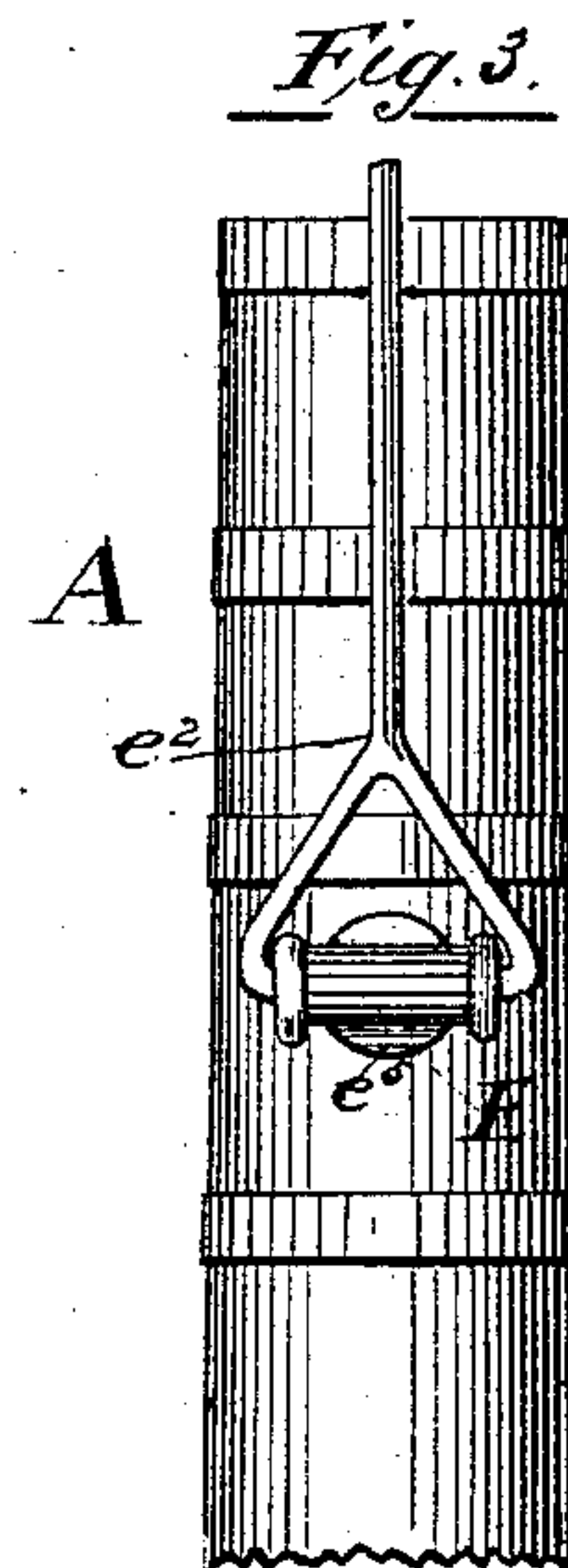
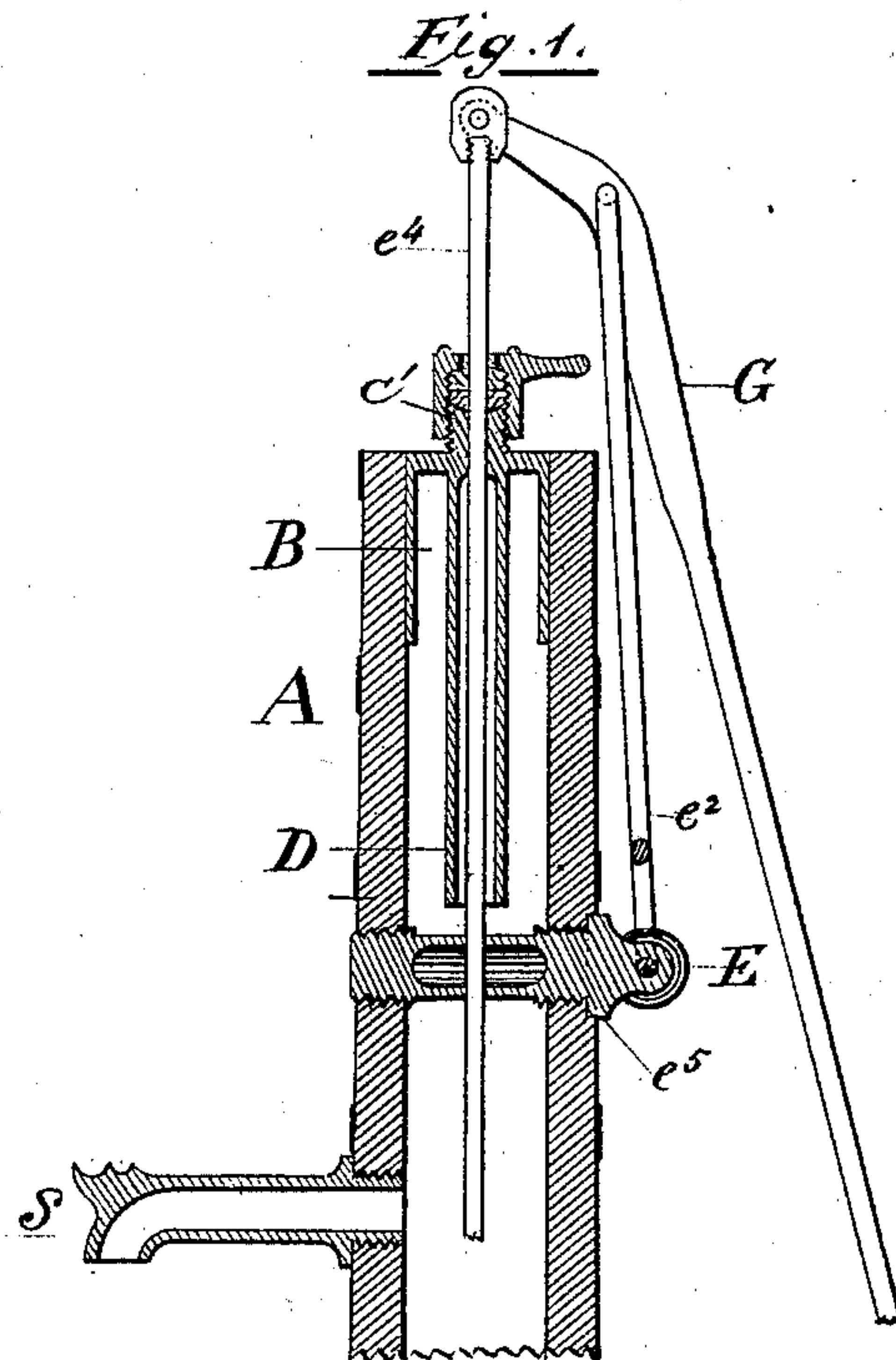


(No Model.)

D. PLEWS.  
WOODEN PUMP.

No. 297,001.

Patented Apr. 15, 1884.



Witnesses

Samuel Wells  
J. C. Post.

Inventor

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by his atty  
William Gill

# UNITED STATES PATENT OFFICE.

DAVID PLEWS, OF TORONTO, ONTARIO, CANADA.

## WOODEN PUMP.

SPECIFICATION forming part of Letters Patent No. 297,001, dated April 15, 1884.

Application filed March 17, 1881. (No model.) Patented in Canada January 15, 1881.

*To all whom it may concern:*

Be it known that I, DAVID PLEWS, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Wooden Pumps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to a wooden pump so constructed as to answer for both a force and a lifting pump.

My improvements relate to the construction of the interior of the pump-head, so as to provide an air-vessel therein, which is indispensable to the efficient working of a force-pump, and having the said air-vessel within the pump-head at the top gives a greater force, in my opinion, and is more economical in construction, than when it is placed on the outside of the pump; and it consists in a metallic cylinder and tube placed in the top of pump-head and below the stuffing-box, and is pressed into the top of the pump-head, which is banded to resist the high pressure when forcing water.

My improvements further consist in an improved foot-iron with socket, in which the rock-arm works, the said foot-iron having two bearings, one on each side of the bore of the pump. It has also an aperture through which the rod passes to connect with the bucket located in the lower part of the pump.

The same letters of reference indicate the same parts in the drawings and specification.

Figure 1 is a side sectional elevation of the upper part of my pump-head through the vertical centerline of the pump. Fig. 2 is a transverse sectional plan view through the foot-iron. Fig. 3 is a back elevation of the upper part of my pump-head.

A represents the pump-head, and *a* the barrel thereof; B, the metallic cylinder, which, with the tube D, compose the chief features of my air-vessel. E is the foot-iron, with socket *e'*, aperture *e''*, and shoulder-flange *e'''*, and threaded at each side of the bore of the pump and screwed tightly up to the shoulder-flange aforesaid. G is the pump-handle, and *e''* the rock-arm hinged in socket *e'*; and *e''*, the pump-rod, and *c''* a stuffing-box.

I will now describe the operation of my pump when used as a force-pump: I tighten the pump-rod packing, when, on the upward move-

ment of the bucket, the water is forced above the spout S, and the foot-iron E, and the lower end of the tube D; the air being correspondingly compressed allows the water to rise, and the space outside of the tube D and the inner surface of the cylinder B becomes a metallic air-vessel, and has the effect of delivering a constant jet of water through the spout S of the pump.

By the foregoing arrangement a common wooden suction-pump is, by means of a small extra cost, converted into an efficient force-pump and fire-engine.

When the pump is being used as a common suction and lift pump, the pump-rod packing is loosened, and does not adhere to and hug the rod tightly, but allows air to pass through the packing and around the rod, when the action of the pump in its downward movement causes suction through the aforesaid packing, which draws any water away that may have collected about the stuffing-box, and prevents freezing, which in very cold weather is constantly taking place in ordinary pumps.

My foot-iron E, by having two threaded bearings—one on each side of the bore of the pump—makes a thoroughly secure and strong support to carry the rock-arm, upon which rock-arm and foot-iron the whole strain comes in the operation of the pump. The foot-iron is easily and cheaply attached to the pump. The shoulder-flange *e'''*, with the threaded bearings, makes it capable of bearing a heavier strain than it otherwise would sustain. The aperture *e''* in the center of foot-iron allows the pump-rod to pass through and form its connection with the bucket of the pump. The cylinder B, with tube D, is pressed tightly into the bore of the pump at the top thereof, thereby necessitating the bands or bolts or clamps hereinbefore described to prevent the bursting of the pump-head.

My pump is operated by the handle G. The rock-arm *e''*, being hinged in the socket *e'*, allows the rod *e''* to reciprocate in a true vertical line.

Having thus described my invention, I claim—

1. A foot-iron, E, in a banded wooden pump, constructed with two threaded bearings—one on each side of the bore of the pump—provided with a shoulder-flange, *e'''*, screwed fast



up to the barrel thereof, and an aperture,  $e^3$ ,  
for the pump-rod to pass through, and a jour-  
nal-socket,  $e'$ , in which the rock-axle turns,  
substantially as specified and described, and  
5 operating as set forth.

2. In a banded wooden pump, the combi-  
nation, with the foot-iron E, having a socket,  
 $e'$ , and shoulder-flange  $e^5$ , of the hinged rock-  
arm  $e^2$ , the handle G, the pump-rod  $e^4$ , and the  
10 stuffing-box  $e'$ , as shown and described.

3. In a banded wooden pump constructed  
with a foot-iron, E, the combination, with the  
barrel  $a$ , of the cylinder B, carrying the tube  
D, as shown and described, and operating as  
set forth.

DAVID PLEWS.

Witnesses:

WILLIAM GILL,  
JOHN ELLIOTT.