

No. 696,061.

Patented Mar. 25, 1902.

H. H. LYTLÉ.
GAS OR VAPOR BURNER.
(Application filed Jan. 19, 1901.)

(No Model.)

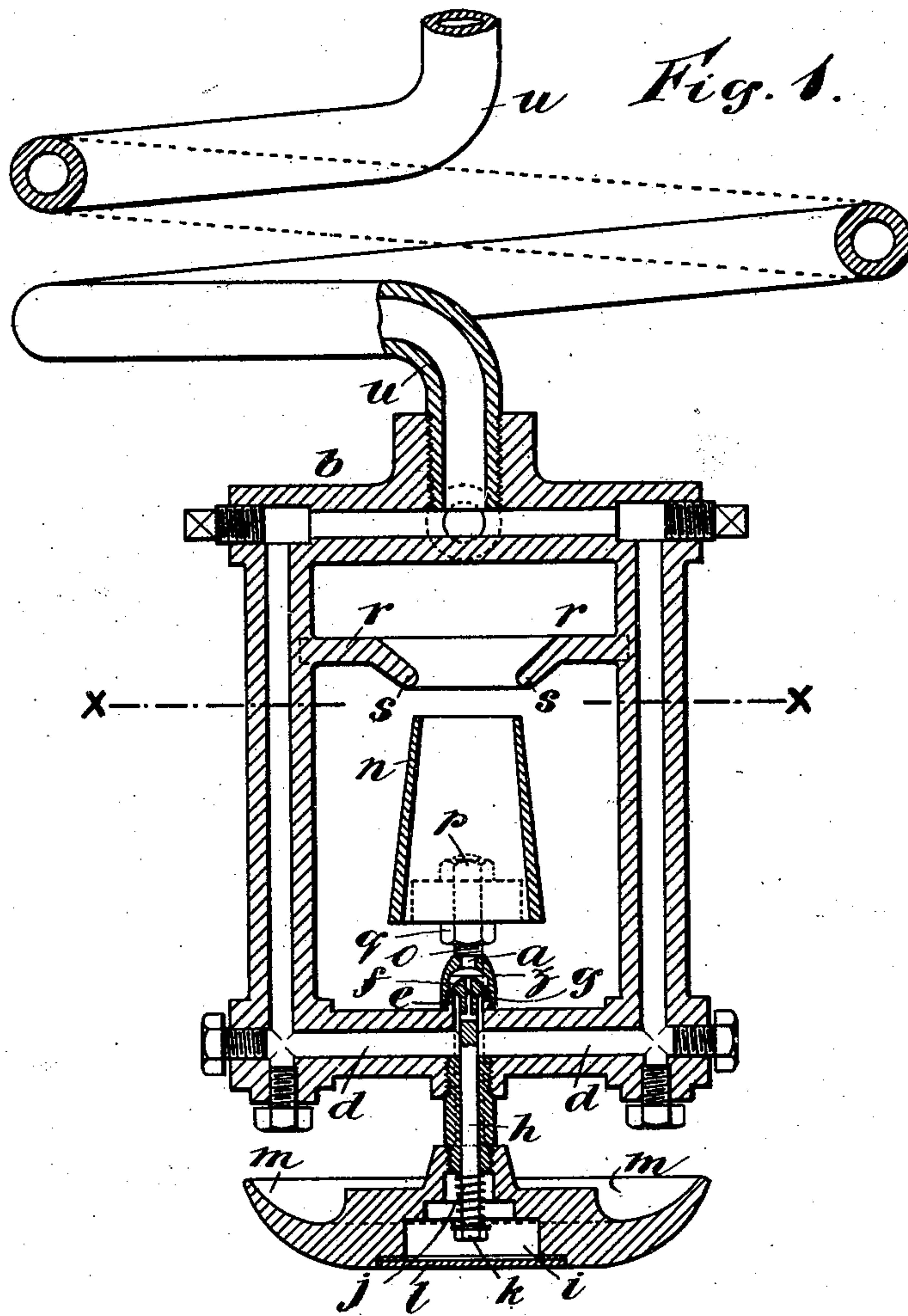
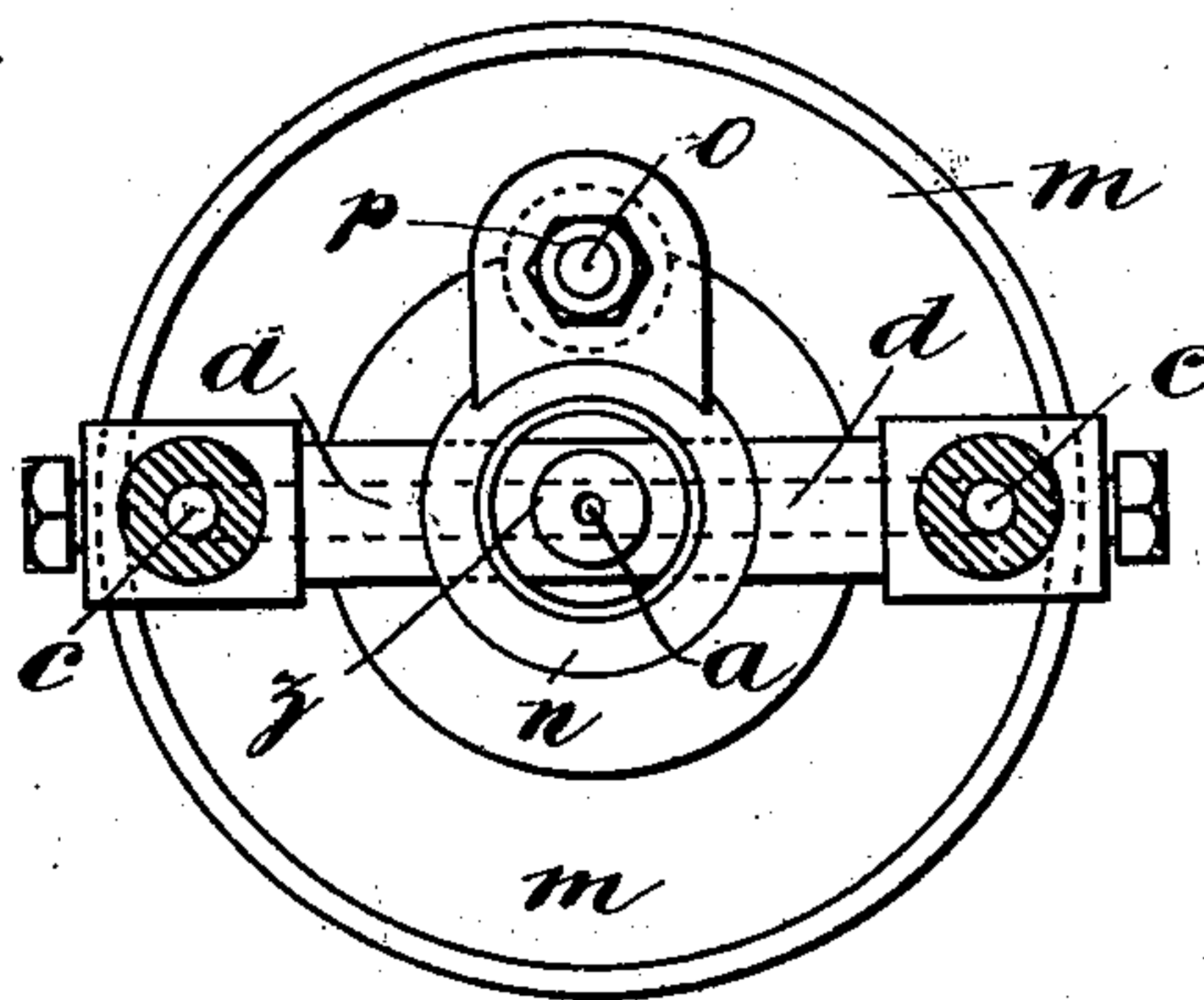


Fig. 2.



Witnesses.

Stephen Edward Gungor -
William Anderson Smith

Inventor.

Herbert Horland Lytle

UNITED STATES PATENT OFFICE.

HERBERT HARTLAND LYTLE, OF LONDON, ENGLAND.

GAS OR VAPOR BURNER.

SPECIFICATION forming part of Letters Patent No. 696,061, dated March 25, 1902.

Application filed January 19, 1901. Serial No. 43,871. (No model.)

To all whom it may concern:

Be it known that I, HERBERT HARTLAND LYTLE, engineer, a subject of the Queen of Great Britain, residing at 55 Hunter street, London, England, have invented certain new and useful Improvements in Gas or Vapor Burners; 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.

This invention relates to improvements in gas and vapor burners generally; but such improvements are more especially applicable to gas and vapor burners in which the flame is maintained by the supply of gas or vapor produced in a generator disposed above and heated by the said flame, which burners are especially applicable for use in the furnaces of steam-generators and the like.

The object of my invention is to provide a burner of simple construction which shall not be liable to be easily extinguished and which shall insure perfect combustion of the gas or vapor, and thereby not only avoid smoke and unpleasant smell, but obtain the maximum heating effect of the oil or other liquid fuel consumed.

Figure 1 of the accompanying drawings is a vertical section of my improved burner, and Fig. 2 is a horizontal section on line X X of Fig. 1.

Similar letters denote like parts throughout the drawings.

a is the burner-orifice, to which the gas or vapor is conducted from the generator b through the vertical passages c and horizontal passages d . The gas or vapor is projected in a more or less finely-divided stream or streams through suitable perforations or openings at the said burner-orifice a . These perforations or openings may be drilled in the upper end of the orifice branch e ; but I prefer to employ a valve f , as shown in the drawings. This valve f has a central hole g , which constantly communicates with the horizontal passages d , so as to supply a limited quantity of gas or vapor to support combustion even when the valve f is closed.

z is the burner proper, which is screwed onto the orifice branch e , as shown. The stem h of the valve f is extended downward

into the recess i and is furnished at its lower end with a spring j and adjustable screw-nut k , whereby the pressure required to open the valve f may be regulated at pleasure.

l is a plate forming a gas and liquid tight cover for the recess i , which is thereby kept charged with oil, which serves to keep the spring j and surrounding parts cool.

m is an annular trough for the reception of spirit when starting the burner in a manner well understood in connection with this class of apparatus.

n is a hollow truncated cone supported at a suitable distance above the burner-orifice a by means of the standard o or by other convenient means, being preferably adjustable as to height by means of the screw-nuts p and q .

r is an annular baffle or flame-dividing plate, the diameter of the central opening of which approximates more or less closely to the internal diameter of the upper and smaller end of the hollow truncated cone n , the inner edge s preferably projecting in a downward direction, as shown. The generator b is of any suitable construction, to which oil is admitted from the oil-pipe u , which is preferably coiled, as shown, so as to vaporize the oil more or less before it enters the generator.

When the burner is in operation, the gas or vapor from the generator b passes to the burner z either through the central hole g in the valve only or also through the opening of the valve f , according to the pressure of the gas or vapor behind the said valve. The gas or vapor is projected through the burner z upward into the hollow truncated cone n . On leaving the upper end of the cone n the gas or vapor flame is divided, the central portion thereof passing through the opening in the annular baffle or flame-dividing plate r , striking the under side of the generator b and being deflected outward thereby, while the outer portion of the said flame impinges on the inner edge s of the annular baffle or flame-dividing plate r and is deflected outward by the surface of the under side of the said annular baffle or flame-dividing plate. The two portions of the flame meet and more or less intermingle after having passed the outer circumference of the annular baffle or flame-dividing plate r , and a more perfect combus-

tion of the vapor or gas is thereby insured than heretofore.

In some cases the valve *f* may be dispensed with and any convenient number of holes
5 be provided in the upper part of the orifice branch *e* for the outlet of gas or vapor.

I claim—

1. In an apparatus for generating and burning gas or vapor, the combination of the burner
10 *z* with a valve *f*, an adjustable cone *n* above the burner, a generator *b* above the cone, a conduit extending from the generator to the burner and an annular deflector-plate *r* having a central opening with a downwardly and
15 inwardly projecting part *s* extending about the opening, said downwardly-projecting part together with the main part of the deflector-plate serving to deflect a portion of the flame outwardly against the conduit, substantially
20 as described.

2. In combination in an apparatus for generating and burning gas or vapor, a burner
z, an adjustable cone *n* above the burner and

a deflector *r* above the cone, said deflector having a central opening with a downwardly
25 and inwardly projecting part *s* about said opening, the said projecting part together with the horizontal part of the deflector serving to deflect a portion of the flame outwardly, substantially as described. 30

3. In combination in an apparatus for generating and burning gas or vapor, an adjustable cone *n*, and a deflector-plate above the
35 same having a central opening with a downwardly and inwardly inclined part *s* extending about the opening, said part with the horizontal portion of the deflector-plate serving to deflect a portion of the flame outwardly, substantially as described.

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

HERBERT HARTLAND LYTTLE.

Witnesses:

STEPHEN EDWARD GUNYON,
WILLIAM ANDERSON SMITH.