No. 792,667. PATENTED JUNE 20, 1905.

J S ROGERS.

PROCESS OF BURNING HYDROCARBONS AND OTHER COMBUSTIBLES.

APPLICATION FILED NOV. 1, 1902.

3 SHEETS—SHEET 1.

Fig. 1.

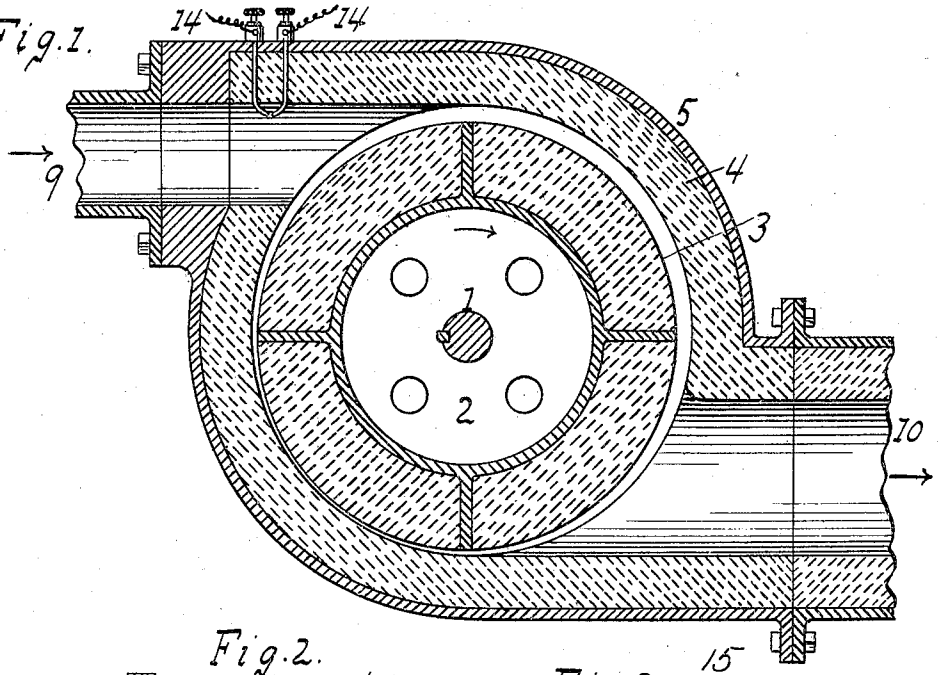


Fig. 2.

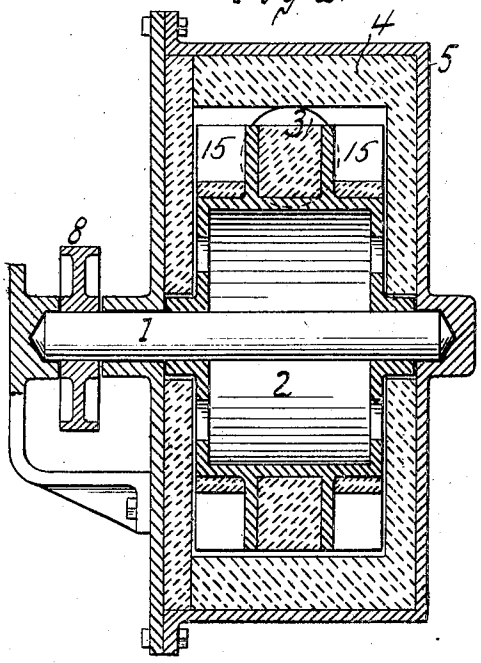
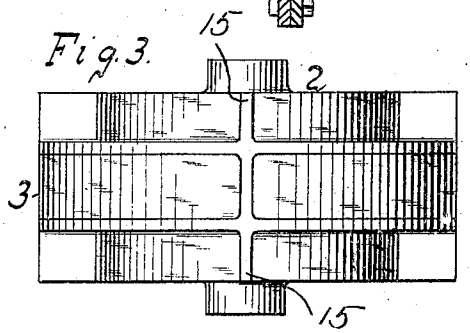


Fig. 3.



WITNESSES:

William Miller

C. B. Pfeiffer

INVENTOR

J. S. Rogers

BY W. C. Hauff

ATTORNEY

No. 792,667. PATENTED JUNE 20, 1905.

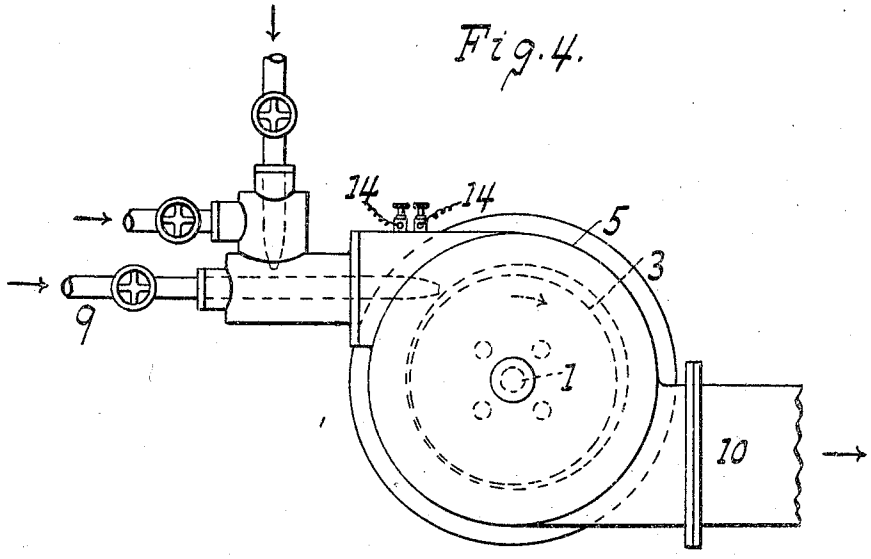
J S ROGERS.

PROCESS OF BURNING HYDROCARBONS AND OTHER COMBUSTIBLES.

APPLICATION FILED NOV. 1, 1902.

3 SHEETS—SHEET 2.

Fig. 4.



WITNESSES:

William Miller

George Hulsberg

INVENTOR

J. S. Rogers

BY W. C. Hamff

ATTORNEY

No. 792,667. PATENTED JUNE 20, 1905.

J. S. ROGERS.

PROCESS OF BURNING HYDROCARBONS AND OTHER COMBUSTIBLES.

APPLICATION FILED NOV. 1, 1902.

3 SHEETS—SHEET 3.

Fig. 5.

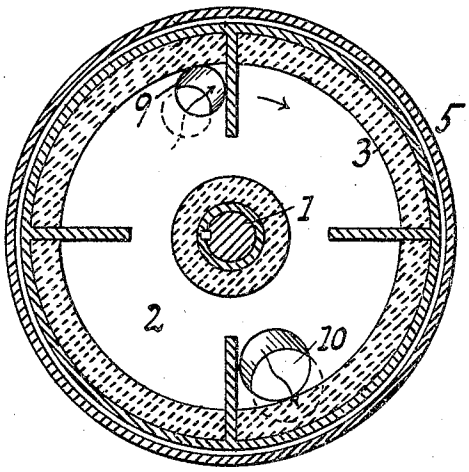
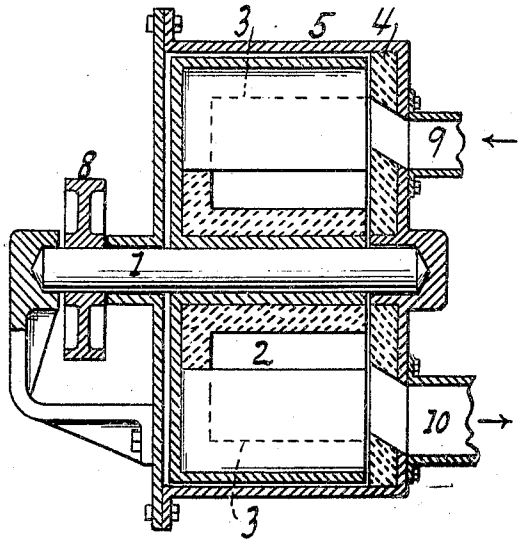


Fig. 6.



WITNESSES:

William Miller

Chas. E. Wenzgen.

INVENTOR

J. S. Rogers

BY W. C. Hauff

ATTORNEY

No. 792,667. Patented June 20, 1905.

UNITED STATES PATENT OFFICE.

J S ROGERS, OF NEW YORK, N. Y.

PROCESS OF BURNING HYDROCARBONS OR OTHER COMBUSTIBLES.

SPECIFICATION forming part of Letters Patent No. 792,667, dated June 20, 1905.

Application filed November 1, 1902. Serial No. 129,688.

To all whom it may concern:

Be it known that I, J S ROGERS, a citizen of the United States, residing in Bronx borough, New York city, in the county and State of New York, have invented new and useful Improvements in Processes of Burning Hydrocarbon or Other Combustibles, of which the following is a specification.

By means of this invention certain advantages can be attained—as, for example, the supply of air required for thorough combustion can be reduced to a minimum. Also suitable proportions of combustible and air, and also of steam in case the latter be employed, are thoroughly mixed and a thorough combustion secured. Intensely-heated surfaces of refractory substance are successively brought into position for heating the supply or stream of fuel above its ignition-point, and the speed or movement of the rotating or moving heated surfaces can be suitably regulated, so that the fresh feed or supply of fuel will with certainty be burned or ignited no matter how great its velocity or flow.

This invention is set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a sectional side elevation of an apparatus embodying this invention. Fig. 2 is a section through the drum of Fig. 1. Fig. 3 shows the drum of Fig. 1. Fig. 4 shows supply means for oil, air, and steam for the inlet. Fig. 5 shows the inside surface of a hollow cylinder adapted to receive the impact of a stream of combustible. Fig. 6 is a central axial section of Fig. 5.

In the drawings is illustrated a shaft 1, having a drum 2. This drum can be formed from a hollow or suitable casting provided with a facing 3, of refractory substance, such as plumbago mixed with fire-clay and constituting a convenient vaporizing-surface. This drum is shown more or less inclosed by a casing 5. This casing can be made of iron capable of withstanding considerable internal pressure. In other words, the casing should be capable of sustaining a pressure of, say, from two hundred and fifty to three hundred pounds to the square inch. This casing is shown with a refractory lining 4. The fuel-inlet to the casing is shown at 9, and the outlet for the products of combustion is shown at 10. A pulley-wheel 8 offers means for actuating or rotating the drum in either direction to present different surfaces of such drum at the inlet.

While this apparatus is fitted to burn any suitable mixture of hydrocarbon, air, and steam, (if the latter be present,) it is particularly fitted for the following process: A mixture of air and steam having a pressure exceeding atmospheric is supplied to the apparatus at the intake 9, together with liquid fuel. On reaching the highly-heated surface of the revolving drum facing the intake the heat of the surface vaporizes the oil. The oil-vapor mixes with the fluids entering at the intake 9, and both are carried forward in the direction indicated by the arrow and ignited by the highly-heated refractory surface of the rotating drum. The refractory lining also becomes highly heated and lends its aid to thorough combustion. The action may be started by igniting and burning a small quantity of light oil—say at the point 9—by electric spark (shown at 14) or other igniting device.

About one-quarter of the rotating drum, as shown, is surrounded by refractory cover or lining, thus forming a confining-wall as far as the outlet 10; but this wall could confine the fluid for a greater or less area without departing from the spirit of my invention.

The rotating surface could be in the form of a disk or the inside surface of a hollow cylinder, as seen in Figs. 5 and 6, without departing from the spirit of my invention.

It is evident that the force necessary to cause the rotation of the surface could be absorbed from the impact of the fluid stream of combustible against suitably-arranged vanes or blades 15 on the rotating surface.

The products of combustion can be led to any engine or other appliance adapted to utilize the pressure of the products of combustion.

I am aware that it is not new to feed oil and air through a pipe and burn the same explosively in a mass of rock, such process being described, for example, in *The Horseless*

Age of May 18, 1902, Volume 9, No. 22, page 646, and such I do not claim.

It has been noticed that in the operation of this device part of the flame passing about underneath the drum or inner refractory surface 3 and up toward the intake 9 will ignite the combustible immediately on its entry at such intake. In carrying out this invention the inner surface or drum could be left stationary; but a rotary or moving drum is preferred.

In speaking of a drum it is to be noted that the part 2 need not be a perfect cylinder, as a polygonal form will also answer; but a cylindrical drum accomplishes the desired purpose.

In Fig. 4 is shown an arrangement for oil, air, and steam inlet. These inlets can be applied as convenient. When the oil strikes the incandescent surface, it is vaporized and the projection of the oil can be accomplished by air under pressure, said air being driven by a blower or by a steam-jet or other suitable means.

What I claim as new, and desire to secure by Letters Patent, is—

1. The method of burning a stream or flow of fuel and air, which consists in delivering the combustible mixture into a suitable chamber, igniting the mixture, and causing the flame to impinge against and heat a refractory vaporizing-surface moving in the direction of travel of the flame.

2. The method of burning a stream or flow of liquid fuel and compressed air, which consists in delivering the combustible mixture into a suitable chamber, igniting the same and causing the flame to impinge against and heat a refractory vaporizing-surface moving in the direction of travel of the flame.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J S ROGERS.

Witnesses:
E. F. KASTENHUBER,
CHAS. E. POENSGEN.