

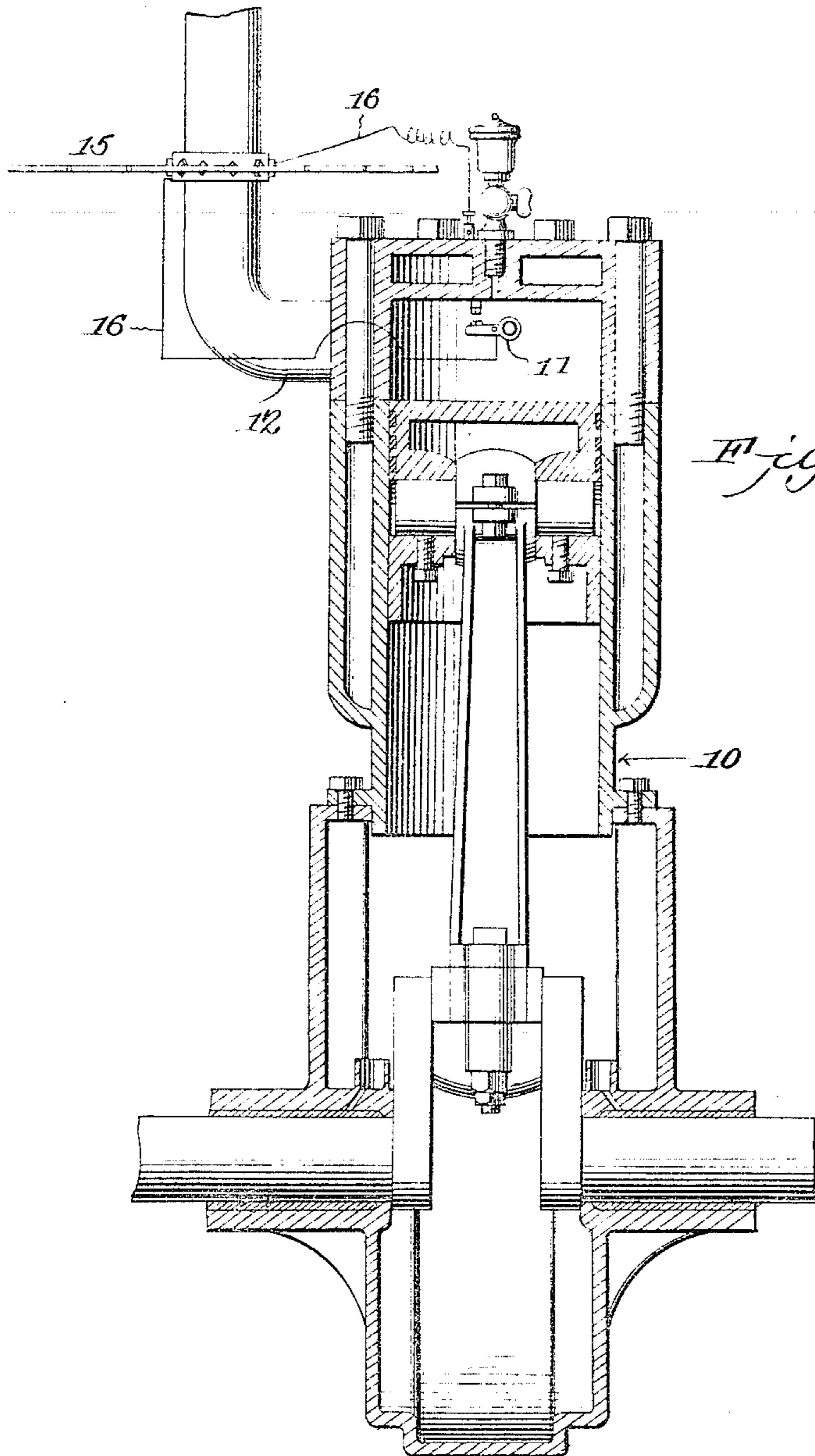
No. 842,391.

PATENTED JAN. 29, 1907.

H. DIECKS.  
THERMOPILE.

APPLICATION FILED JAN. 11, 1906.

2 SHEETS--SHEET 1.



*Fig. 1.*

WITNESSES:

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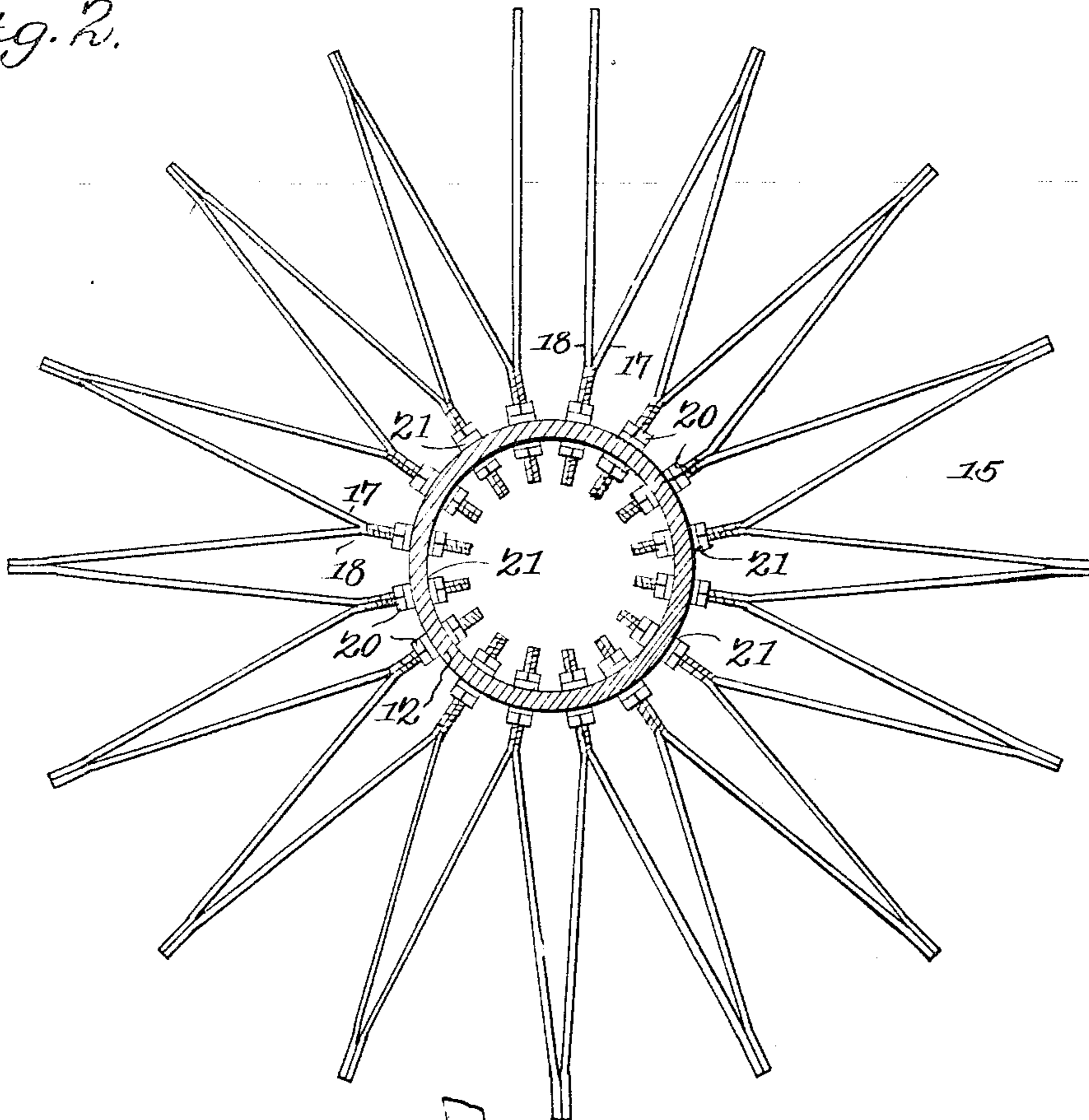
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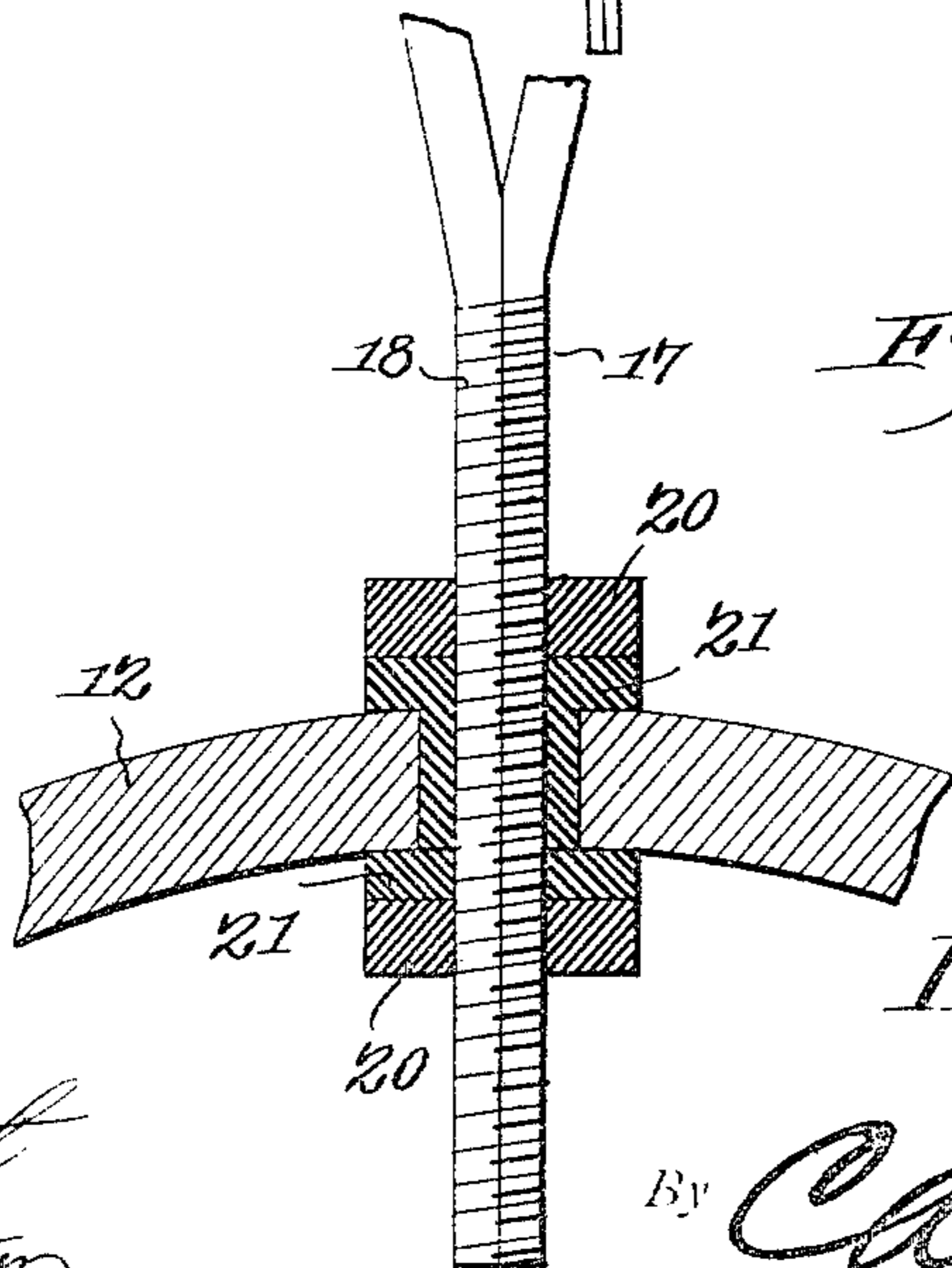
APPLICATION FILED JAN. 11, 1906.

2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

HENRY DIECKS, OF EASTPORT, MAINE.

## THERMOPILE.

No. 842,391.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed January 11, 1906. Serial No. 295,614.

*To all whom it may concern:*

Be it known that I, HENRY DIECKS, a citizen of the United States, residing at Eastport, in the county of Washington and State of Maine, have invented a new and useful Thermopile, of which the following is a specification.

This invention relates to thermopiles.

The principal object of the invention is to provide a novel form of thermopile the inner ends of the couples of which are of such construction as to permit ready introduction into a heating-chamber, the wall of the latter affording a support for the device.

A further object of the invention is to provide a thermopile in which the inner ends of the couples are made semicircular in form and provided with screw-threads for the reception of securing-nuts.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation illustrating the application of a thermopile to an internal-combustion engine. Fig. 2 is a sectional plan view through the exhaust-pipe, showing the thermopile on an enlarged scale. Fig. 3 is a partial sectional plan view showing the heated ends of one of the couples on an exaggerated scale.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The engine 10 is of any ordinary construction and is provided with a sparker 11, which may be of any desired type, that illustrated in the drawings being one in commercial use.

Leading from the cylinder is a pipe 12, through which the exhaust is allowed to escape to any suitable point of discharge, and this exhaust-pipe carries a thermopile, (indicated generally at 15,) the thermopile being connected in a circuit 16. After the engine

is started into operation the heat from the exhaust will maintain the inner ends of the couples of the thermopile at a temperature sufficient to insure the production of a current of electricity, and such current is conducted by the circuit-wires 16 to the said sparking device, any suitable provision being made for controlling the operation of the sparker. The current will continue to flow so long as the engine remains in operation, thus dispensing with batteries or other forms of generators and materially lessening the expense of operation.

The thermopile 15 is formed of a plurality of radiating couples of antimony and bismuth, which are united at their outer and inner ends. The inner ends of the couples 17 and 18 are preferably made semicircular in cross-section and are threaded for the reception of nuts 20, by which the couples are confined in place. The inner ends of the couples are passed through suitable openings formed in the exhaust-pipe 12 and are insulated therefrom by insulating sleeves and washers 21, the nuts 20 being also formed of some insulating material—such, for instance, as vulcanized fiber—and serving both as a means for holding the ends of the couples together and for locking the same in position on the exhaust-pipe.

The inner ends of the couples are exposed to the heat of the products of combustion passing through the exhaust-pipe, and the temperature of the inner portion of the thermopile is raised to an extent sufficient to start it into operation. The outer ends of the couples are arranged at a sufficient distance from the exhaust-pipe to maintain the necessary low temperature.

I claim—

1. In combination, a casing or pipe through which a heated fluid may be directed, said casing having a perforated wall, a thermopile formed of radiating couples, the inner ends of said couples being brought closely together in parallel relation and extended through the perforations to be exposed to the action of heat, and means for locking said inner ends to each other and to said casing.

2. The combination with a casing or pipe through which a heated fluid may be directed, the wall of said pipe being perforated, of a thermopile formed of radiating couples, the

inner ends of said couples being semicircular  
in cross-section and provided with screw-  
threads, insulating-washers arranged in the  
perforations and extending around said cou-  
5 ples, and nuts arranged on the threaded por-  
tions of the couples and serving to confine  
the same in place.

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature in  
the presence of two witnesses.

HENRY DIECKS.

Witnesses:

F. W. WILLIAMS,  
W. C. KING.