F. H. TREGO.

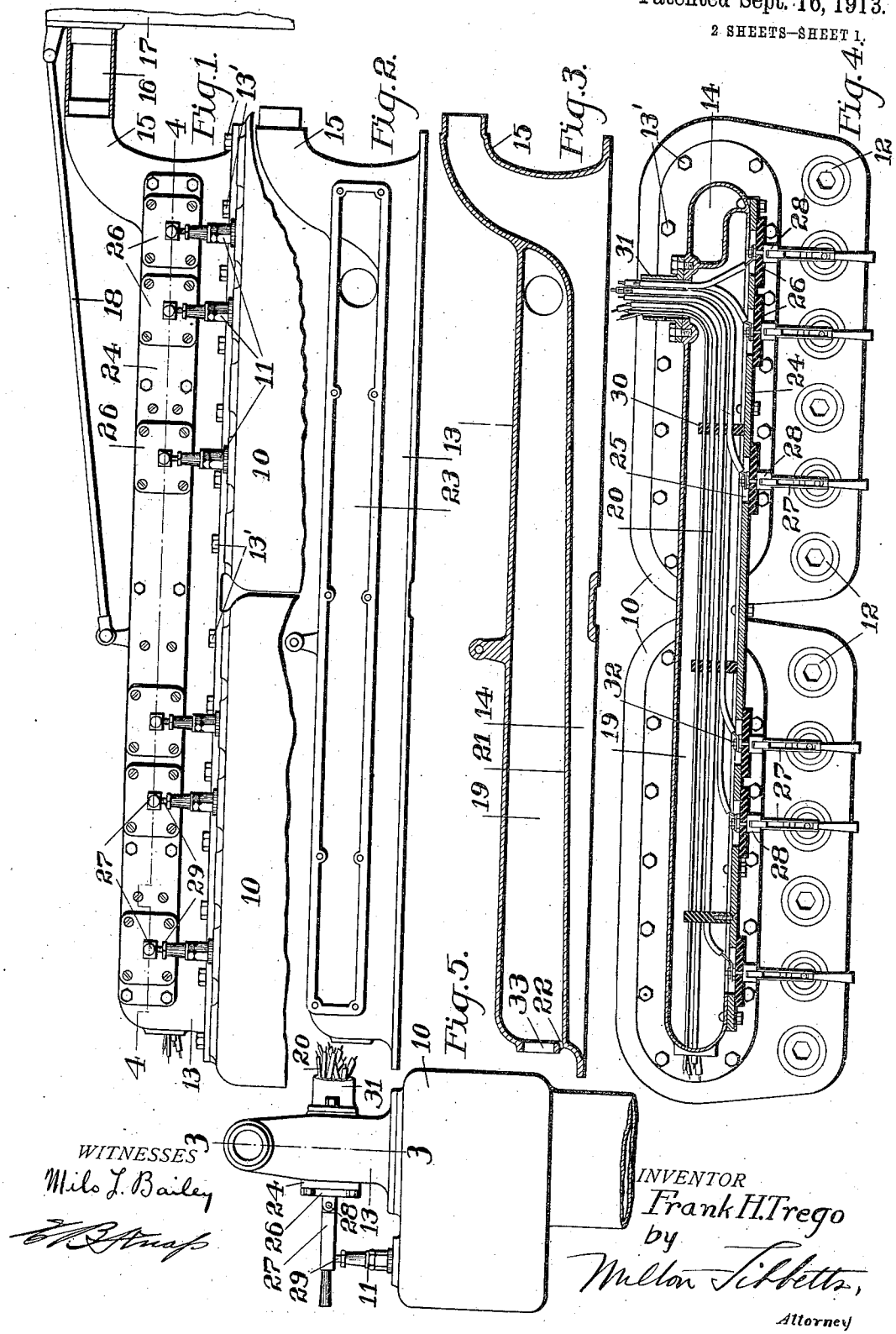
HYDROCARBON MOTOR.

APPLICATION FILED DEC. 14, 1912.

1,073,183.

Patented Sept. 16, 1913.

2 SHEETS—SHEET 1.



WITNESSES

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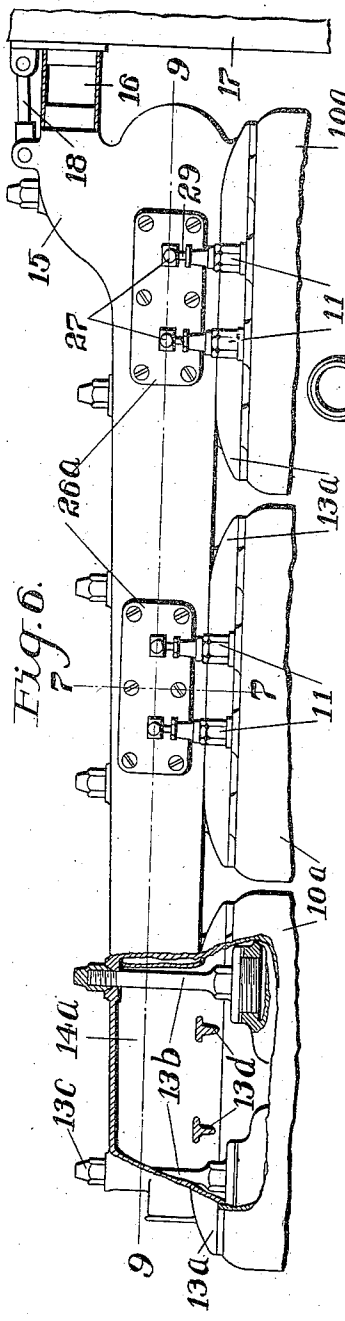

Fig. 6.

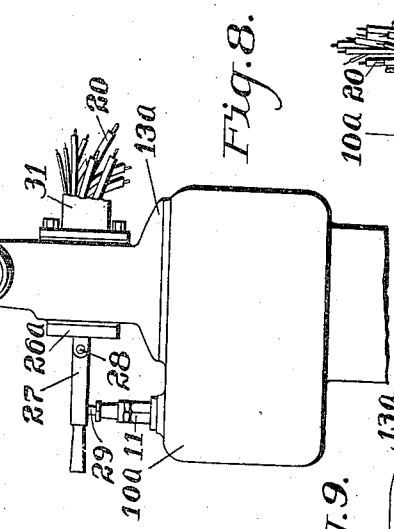

Fig. 8.

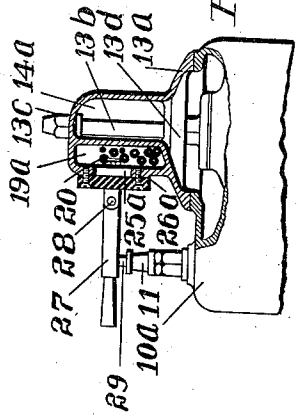

Fig. 7.

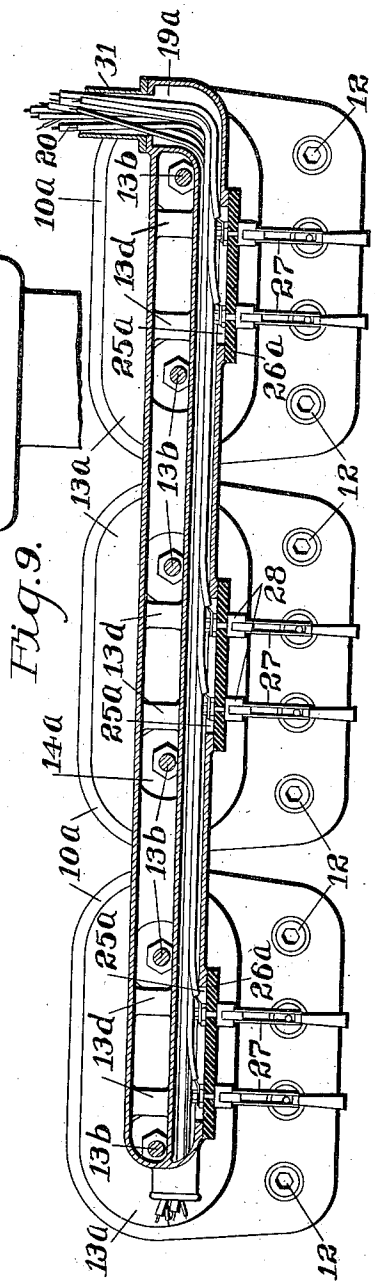

Fig. 9.

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HYDROCARBON-MOTOR.

1,073,183. Specification of Letters Patent. Patented Sept. 16, 1913.

Application filed December 14, 1912. Serial No. 736,751.

To all whom it may concern:

Be it known that I, FRANK H. TREGO, a citizen of the United States, and resident of Detroit, Wayne county, State of Michigan, have invented certain new and useful Improvements in Hydrocarbon-Motors, of which the following is a specification.

This invention relates to hydrocarbon motors, and particularly to the water outlet conduit for the cylinders and the housing and supports for the ignition wires and switches.

Heretofore it has been customary to support the ignition wires of a hydrocarbon motor in tubes or other housing arranged along the tops of the cylinders. In the present invention this housing is combined with the water outlet cover for the cylinders and is cast integral with said cover.

One of the objects of the invention is the provision of a housing for the ignition wires, which is formed as an integral part of the water outlet or conduit for the cylinders.

Another object of the invention is to construct a housing for the ignition wires of a hydrocarbon motor with a detachable side wall, upon which are mounted supports for the ignition wires and switches, so that all of the wires of the motor may be assembled on this cover and the cover may be attached to the housing with the wires in correct position.

Other objects of the invention will appear from the following description, taken with the drawings, which form a part of this specification, and in which,

Figure 1 is a side elevation of the upper part of a hydrocarbon motor embodying this invention; Fig. 2 is a side elevation of the cylinder water cover and ignition wire housing with the detachable wall of said housing removed; Fig. 3 is a longitudinal vertical section on the line 3—3 of Fig. 5, the wires being removed; Fig. 4 is a horizontal section approximately on the line 4—4 of Fig. 1; Fig. 5 is a front end view of the motor shown in Fig. 1; Fig. 6 is a view similar to Fig. 1, showing another form of the invention; Fig. 7 is a transverse section approximately on the line 7—7 of Fig. 6; Fig. 8 is a front end view of the motor shown in Fig. 6; and Fig. 9 is a horizontal section approximately on the line 9—9 of Fig. 6.

Referring to the drawings, Figs. 1 to 5 illustrate a six cylinder motor having two blocks of cylinders of three cylinders each. These cylinders 10 are of course provided with suitable inlet and exhaust valves, and spark plugs 11 are preferably arranged over the inlet valves. Plugs over the inlet and exhaust valves are shown at 12.

The cylinder blocks are formed with suitable water jackets, and the castings are left with large openings at the top, which are closed by an elongated cover 13, which thereby forms an outlet conduit 14 for the water in the cylinder jackets. This cover or conduit has a curved neck 15 at its front end, which is connected by a rubber hose 16 with a radiator 17, of any suitable construction. The radiator is shown connected to the motor by a rod 18 for steadying it. The cover 13 is preferably secured to the cylinders by a series of bolts 13′.

Formed as an integral part of the cover 13, is a housing 19 for the ignition wires 20. For the dual purpose of providing a gradual rise of the conduit 14 toward its outlet end so that there may be no pockets formed in the water system of the motor, and of providing an inclined bottom wall for the housing 19, so that any condensation therein may drain toward one end, the separating wall 21 is inclined, as shown particularly in Fig. 3, and a drain hole 22 is provided at its rear end.

One of the sides of the housing 19 is left open, as shown at 23, and this elongated opening is closed by a removable cover 24, shown as provided with openings 25 therein. Over the openings 25 are secured covers or blocks 26 of insulating material, to which the ignition switches 27 are secured, and whereby said switches are insulated from the motor. These switches 27 are jointed, as shown at 28, and are so positioned that they may connect with the contact pieces 29 mounted on the spark plugs 11.

Insulating supports or blocks 30 are secured to the inside of the cover 24 and provided with holes, through which the wires 20 may pass for supporting the latter free from the walls of the housing 19. These wires 20 are led from the magneto, which is suitably mounted on the motor, through a tube 31 connected to the housing 19 at the forward end thereof, and such of the wires as convey current from the magneto dis-

tributer, are connected to the switches 27 on the inside of the blocks 26, as shown at 32. The wires that go to the dashboard of the vehicle for connection to the coil and switch mechanism, pass through an opening 33 at the rear end of the housing 19, as shown particularly in Figs. 3 and 4.

From the above description, it will be seen that all of the wires and switches may be mounted upon the cover or plate 24 before any of them are connected to the motor, and the loose ends of the wires may then be threaded through the tube 31 and the opening 33 respectively, as the cover 24 is secured in place over the opening 23. This makes a particularly convenient and advantageous method of assembling in the manufacture of these motors.

Referring to the form of the invention shown in Figs. 6 to 9, the cylinders 10^a are shown as cast in three blocks of two cylinders each, and the cover 13^a is secured to the cylinders by two bolts 13^b for each cylinder casting, these bolts extending upwardly from the center of the cylinders through the water conduit 14^a and being provided with securing nuts 13^c. In this case, the conduit 14^a is formed at one side of the wire housing 19^a, and said housing, instead of having its entire side cut away, has openings 25^a therein, which openings are closed by insulating blocks 26^a, which support the switches 27, similar to the blocks 26 of the form shown in the other figures. In this form of the invention also, the wires 20 are allowed to rest against the walls of the housing 19^a, this housing being made sufficiently narrow horizontally to support the wires, as shown in Fig. 7.

The cover 13^a is preferably strengthened by integral cross ribs 13^d, as shown particularly in Figs. 6 and 7.

Other parts of the invention illustrated in Figs. 6 to 9 are substantially the same as in the form of the invention shown in Figs. 1 to 5.

Two embodiments of the invention have been described in detail, which embodiments are deemed to be new and advantageous, but it should be understood that the invention is not limited to the exact details of construction shown, as it will be apparent that changes may be made without departing from the spirit and scope of the invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is,

1. In a hydrocarbon motor, the combination with the cylinders thereof, of a water conduit secured to the cylinders, said conduit being formed with a housing for the motor ignition wires.

2. In a hydrocarbon motor, the combination with the cylinders thereof, of a cover for the water chambers of said cylinders forming a water conduit, and means formed integral with said cover for housing said ignition wires.

3. In a hydrocarbon motor, the combination with the cylinders thereof, of a cover for the water chambers of said cylinders forming a water conduit, a housing formed integral with said cover and arranged above the conduit, and ignition wires for the motor within said housing.

4. In a hydrocarbon motor, the combination with the cylinders thereof, of a housing for the ignition wires mounted on said cylinders, said housing having one of its walls detachable, and wire supports mounted on said detachable wall.

5. In a hydrocarbon motor, the combination with the cylinders thereof, of a housing for the ignition wires mounted on said cylinders and having one side open, a cover for said open side, insulating blocks mounted on said cover, ignition wires supported in said blocks, and means for detachably securing said cover in place with the blocks and wires inside the housing.

6. In a hydrocarbon motor, the combination with the cylinders thereof, of a housing for the ignition wires mounted on said cylinders and having one side open, a cover for said open side, insulating supports secured to said cover, ignition switches mounted on said supports, and wires in said housing connected to said switches.

7. In a hydrocarbon motor, the combination with the cylinders, of a housing for the ignition wires mounted on said cylinders, said housing having openings in its side, insulating covers for said openings, switches mounted on said covers, and wires in the housing connected through said covers with said switches.

8. In a hydrocarbon motor, the combination with the cylinders, of a cover for the water chambers of said cylinders forming a water conduit, a housing formed as an integral part of said cover above said conduit and having its bottom wall inclined and its lower end wall provided with a drain hole, and ignition wires supported in said housing.

9. In a hydrocarbon motor, the combination with the cylinders, of a cover for the water chambers of said cylinders forming a water conduit, a housing formed as an integral part of said cover above said conduit and having its bottom wall inclined and its lower end wall provided with a drain hole, and ignition wires supported in said housing out of contact with the side walls thereof.

10. In a hydrocarbon motor, the combination with the cylinders thereof, of a housing for the ignition wires mounted on said cylinders and having one side open, a cover for

said open side, supporting devices mounted on the inside of said cover for supporting said wires, ignition wires for the motor in said housing and supported in said devices, switches connected to the terminals of said wires, means on said covers for supporting said switches on the outside thereof, and means for detachably securing said cover to said housing.

11. In a hydrocarbon motor, an ignition wire housing comprising integral top and bottom walls and one side wall, and a detachable side cover, insulating blocks secured to the inside of said cover for supporting the ignition wires, and insulating blocks on said cover for supporting the ignition switches on the outside thereof.

12. In a hydrocarbon motor, the combination with the cylinders thereof, of a cover for the water chambers of said cylinders forming an outlet conduit and an ignition housing, the wall separating the water conduit from the ignition housing being inclined downwardly toward the rear of the motor.

13. In a hydrocarbon motor, a water outlet conduit having an ignition wire housing formed integrally therewith.

In testimony whereof I affix my signature in the presence of two witnesses.

FRANK H. TREGO.

Witnesses:
JOHN D. WILSON,
J. H. HUNT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."