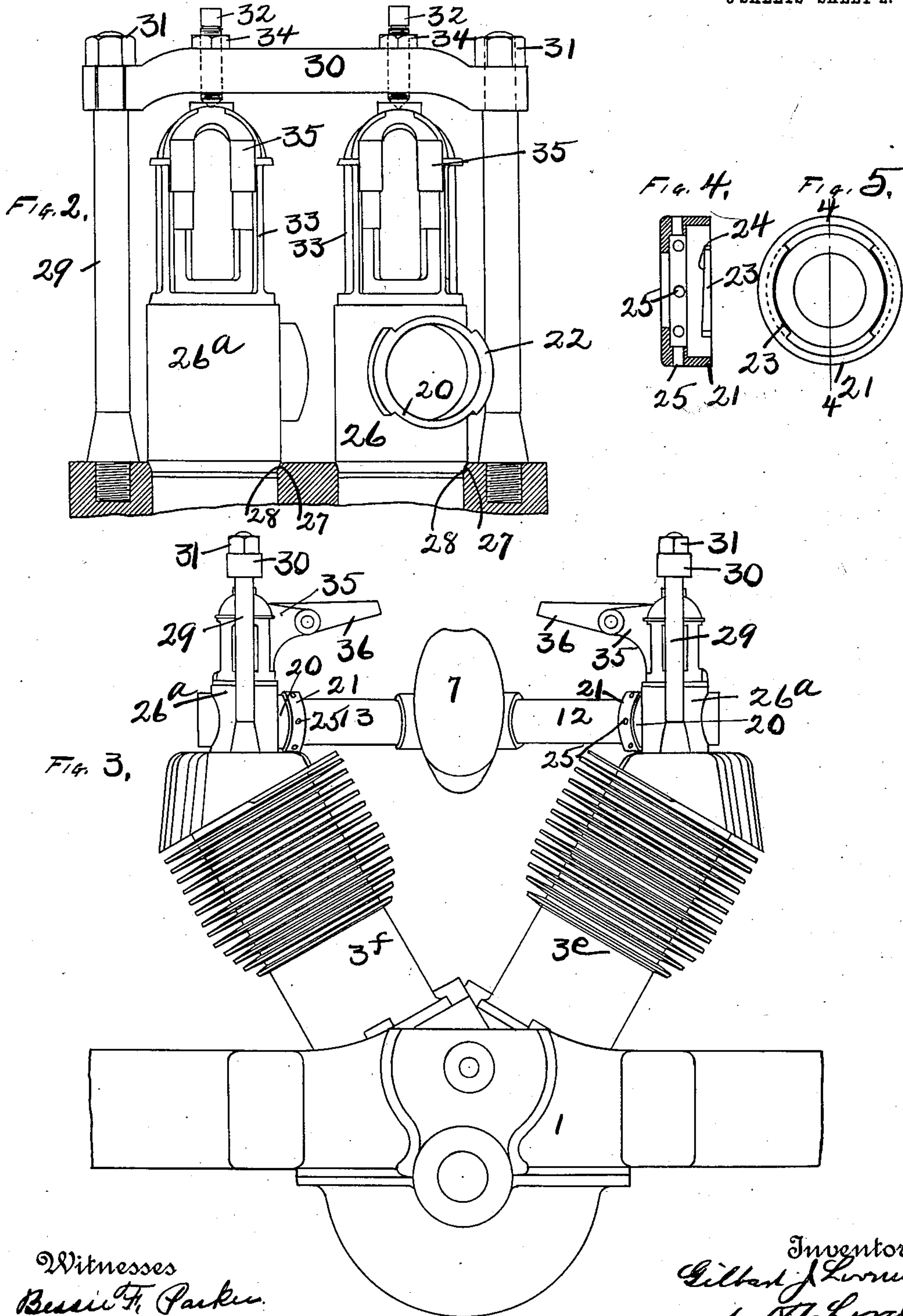


G. J. LOOMIS.
INTERNAL COMBUSTION ENGINE.
APPLICATION FILED MAY 16, 1907.

951,252.

Patented Mar. 8, 1910.

3 SHEETS—SHEET 2.



Witnesses
Bessie F. Parker.
S. B. Drake

Inventor,
G. J. Loomis
by W. L. Lord
Attorney

G. J. LOOMIS.
INTERNAL COMBUSTION ENGINE.
APPLICATION FILED MAY 16, 1907.

951,252.

Patented Mar. 8, 1910.

3 SHEETS—SHEET 3.

Fig. 6.

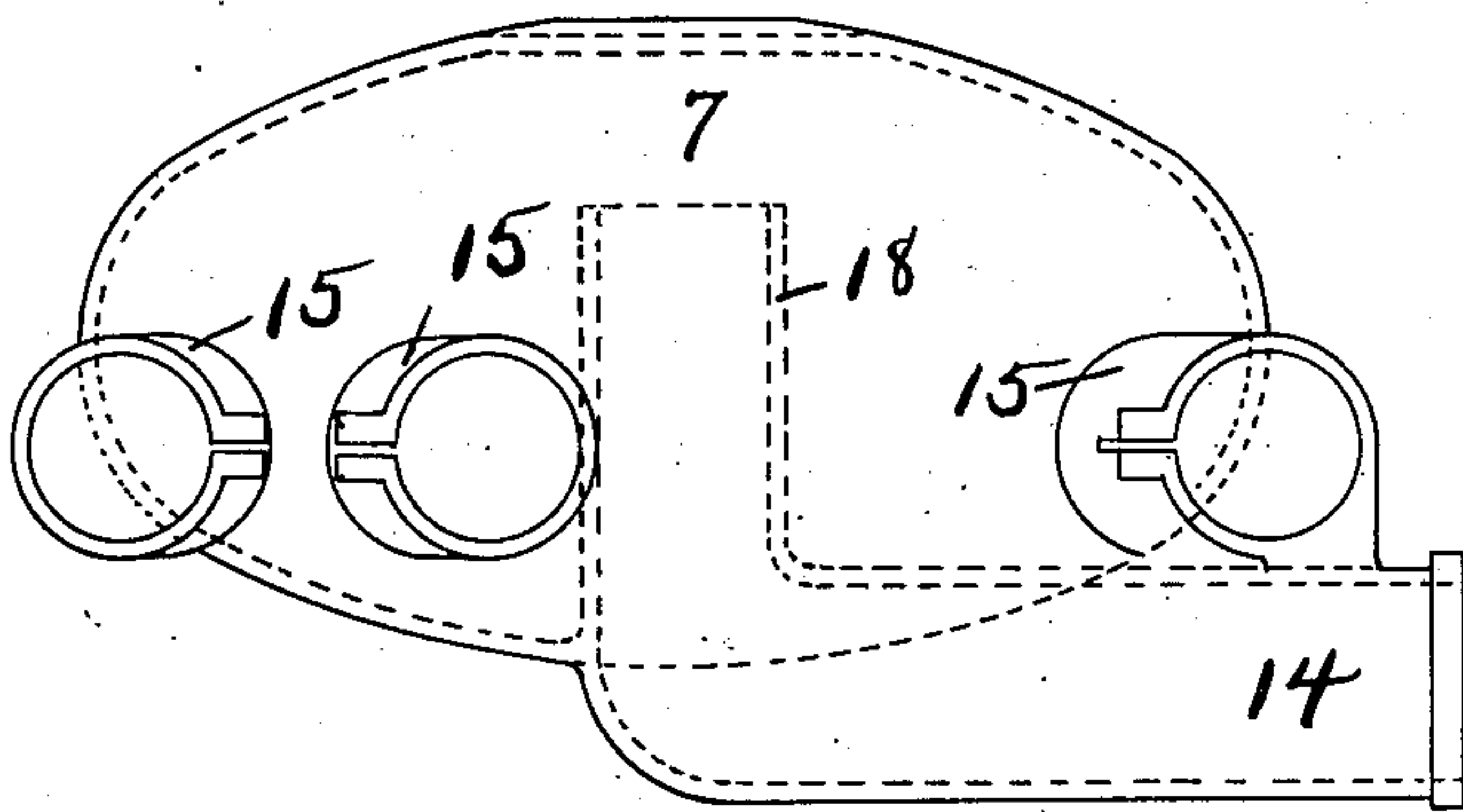


Fig. 7.

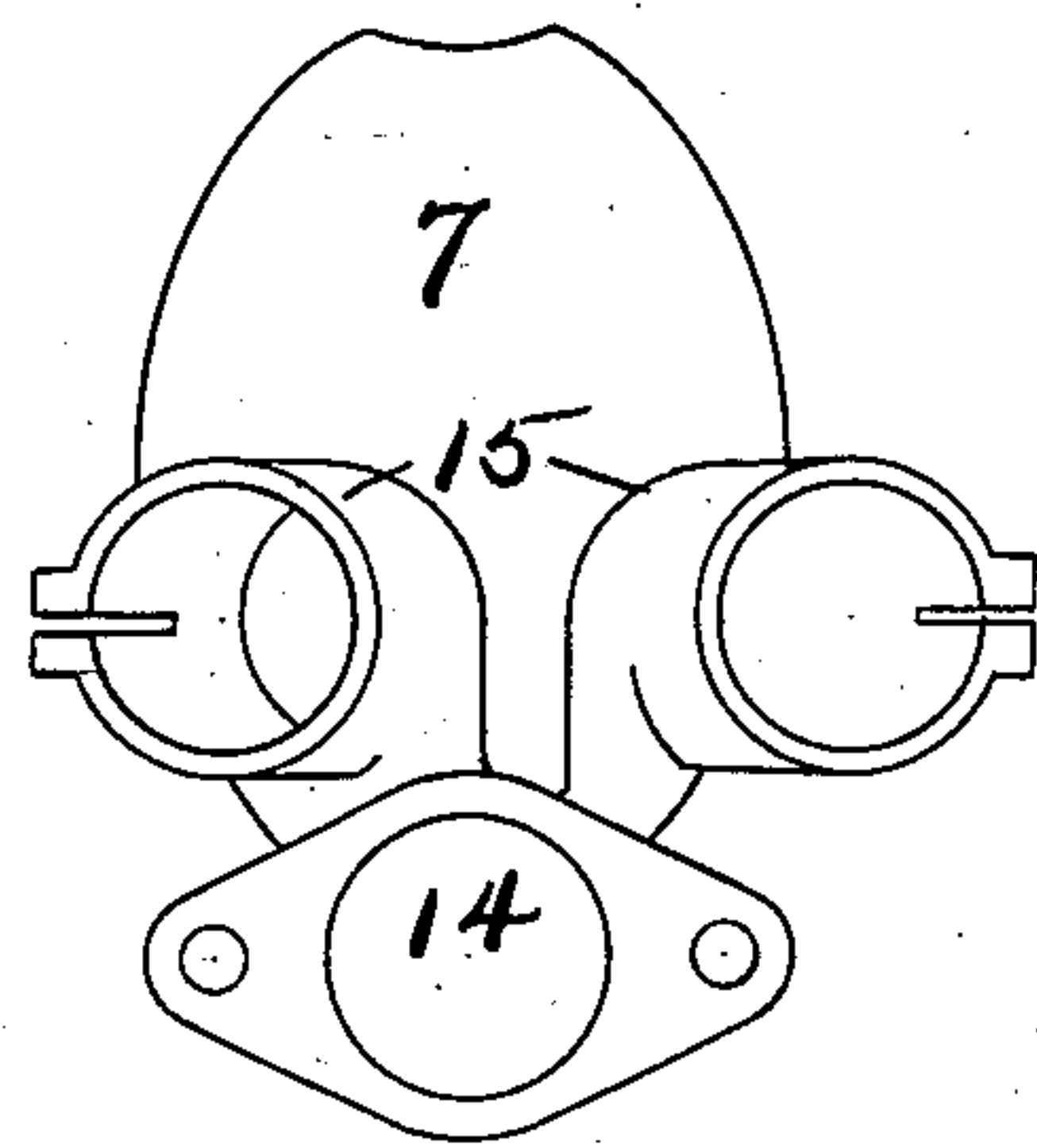


Fig. 8

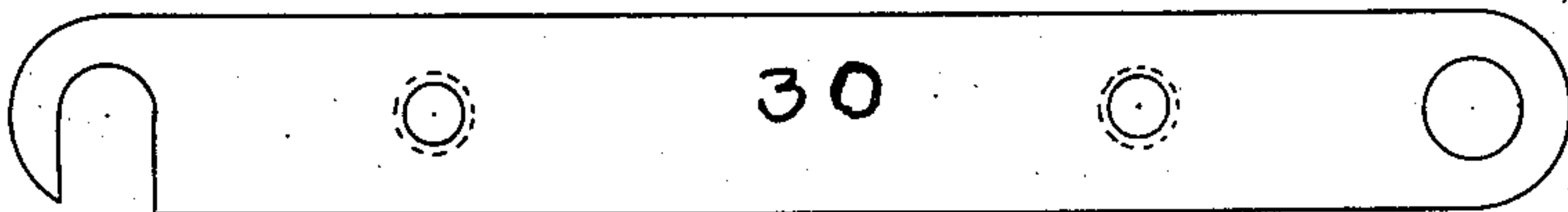
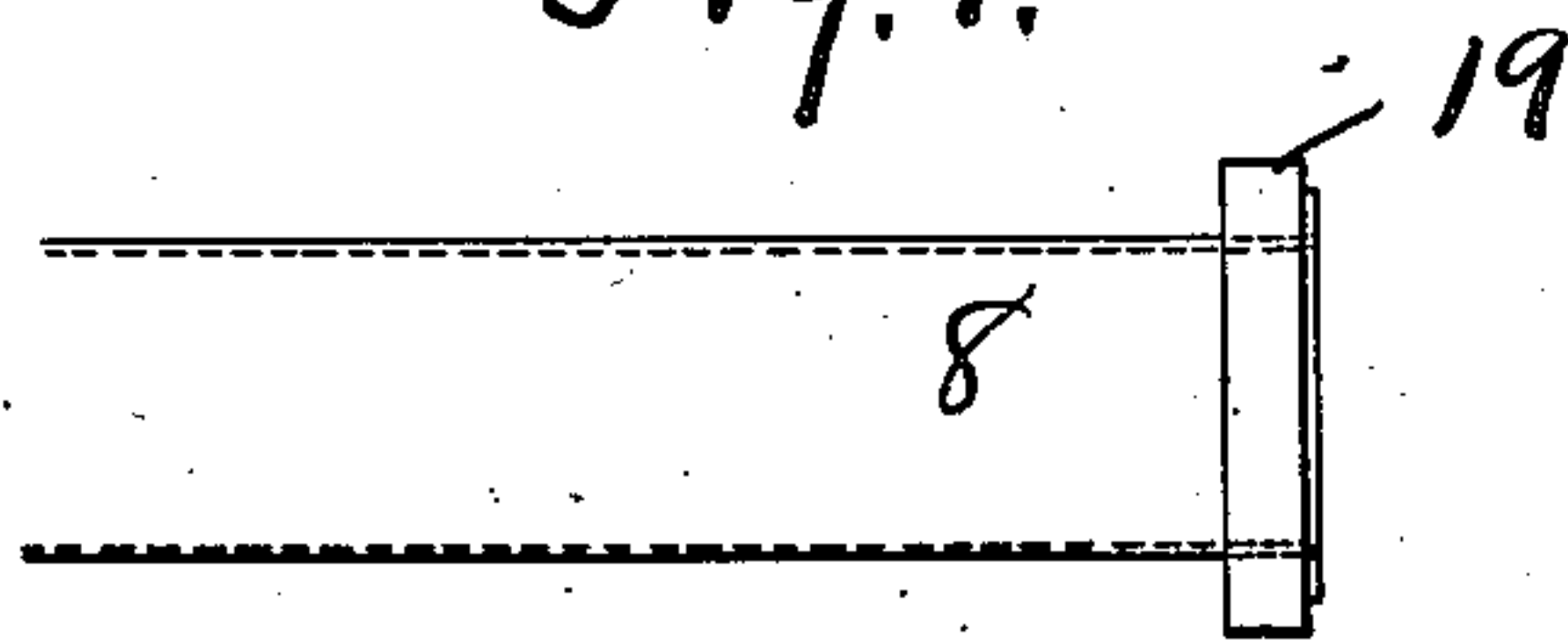


Fig. 9.



Witnesses
Bessie F. Parker,
J. B. Drake

Inventor
Gilbert J. Loomis
by W. C. Lind.
Attorney

UNITED STATES PATENT OFFICE.

GILBERT J. LOOMIS, OF ERIE, PENNSYLVANIA, ASSIGNOR TO THE MODERN TOOL COMPANY, OF ERIE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

INTERNAL-COMBUSTION ENGINE.

951,252.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed May 16, 1907. Serial No. 374,079.

To all whom it may concern:

Be it known that I, GILBERT J. LOOMIS, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Internal-Combustion Engines, of which the following is a specification.

This invention relates to internal combustion engines and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

More particularly the invention relates to devices for distributing the gases or vapor in connection with a plurality of engine cylinders.

Difficulty has been experienced in getting a proper distribution of the gases among the cylinders of engines, especially among those having a large number of cylinders, for instance in a six cylinder engine. It is of course desirable that each cylinder should get a like charge of like quality and the leading object of this invention is to provide means for effecting this result.

The invention is illustrated in the accompanying drawings as follows:

Figure 1 shows a plan view of a six cylinder engine with the device forming the subject matter of my invention. Fig. 2 an enlarged view through the valve of the valve chamber. Fig. 3 an end elevation of the engine. Fig. 4 a section on the line 4-4 in Fig. 5, showing the lock nut for locking the connecting parts between the distribution and the engine valve. Fig. 5, an end view of the segmental nut. Fig. 6, a side elevation of the distributing chamber. Fig. 7 an end view of the same. Fig. 8 a plan view of the valve securing bar. Fig. 9, a side elevation of one end of the connecting pipe.

1 marks the crank case which forms the base of the engine; 2 the frame to which the case is attached, ordinarily a part of the frame of an automobile; 3^a, 3^b, 3^c, 3^d, 3^e, and 3^f the engine cylinders. These are arranged to operate upon the same crank shaft and are staggered to operate upon separate cranks and are preferably inclined to a vertical plane so that three of them are on one side and three on the opposite side of the plane, preferably at an angle of sixty degrees.

The distributing chamber 7 is arranged

in as nearly a central point in relation to all the cylinders as is convenient, preferably in the angle formed by planes extending through the axes of the cylinders and between the cylinders. Pipes 8, 9, 10, 11, 12 and 13 lead to the cylinders 3^a, 3^b, 3^c, 3^d, 3^e, and 3^f respectively. These connecting pipes extend into fittings 15 and are secured by screws 16. By this means of connection they may be adjusted axially as desired. The passage 14 is preferably connected with the chamber 7 and extends into an upwardly and inwardly extending portion 18. This portion 18 extends upwardly from the floor of the distributing chamber to a point above the discharge openings 15. The purpose of this is to avoid any unequal movement of the vapor or gases toward any of the discharge openings. The vapor and gases entering through the entrance passage 18 strikes the roof of the chamber and is deflected and spread equally to all parts of the chamber. This upwardly extending passage 18 above the floor also prevents any back flow that may form in the chamber to the passage. I prefer to make the discharge openings 15 also, above the bottom of the chamber for this purpose. The inlet passage 14 is connected with pipe 17 leading to the carbureter. (Not shown.) The connecting pipes 8, 9, 10, 11, 12, 13 are each provided with a flanged end 19. This flanged end abuts against the inlet 20 of the inlet valve casing 26 leading to the cylinder. The segmental nut 21 is arranged on the pipes and extends over and engages this flange. The inlet passage 20 is provided with the segmental threads 22 which are engaged by the segmental threads 23 on the segmental nuts 21. The threads 23 have the cam faces 24 so that while a quick joint may be made the faces of the joint may be drawn very closely together. The segmental nut 21 is provided with the perforations 25 with which the spanner wrench may be used if desired.

The inlet valve casing 26 and the exhaust valve casing 26^a are each provided with the beveled end 27 which fits into the perforations in the seat 28 on the ends of the flange. The posts 29 extend upwardly from the cylinders and the valve spring bars 30 are secured to the upper ends of the posts by means of the nuts 31. Screws 32 extend through the securing bar 30 against the walking beam frames 33. These frames are

arranged on the top of the valve chambers and the screw exerting pressure upon them and the valves makes a convenient means for assembling these parts. The screws are
5 locked in position by the jam nuts 34. The brackets 35 extend from the frames 33 and the valve operating walking beams 36 are pivoted on these brackets.

If it is desired to remove the entire system, it is only necessary to loosen each of
10 the flanged segmental nuts 21. They can then be removed back of the pipes and the distributing chamber and the pipes taken out as a unit. The telescopic connection be-
15 tween the chamber and the pipes permits of the adjustment of the pipes so that they can be readily connected to the different cylinders and the use of the distributing chamber insures a uniform quantity of the mixture
20 and an equal amount thereof for each cylinder.

What I claim as new is:

1. In an internal combustion engine the combination of a plurality of cylinders; a
25 gas distributing chamber having a plurality of exits; connections between said exits and said cylinders; and an inlet passage leading to said chamber from below, the opening from said passage to said chamber being
30 above the floor of the chamber.

2. In an internal combustion engine the combination of a plurality of cylinders; a
35 gas distributing chamber having a plurality of exits; connections between said exits and said cylinders; and an inlet passage leading to said chamber from below, the opening

from said passage to said chamber being above the exits leading from the chamber.

3. In an internal combustion engine the combination of a plurality of cylinders; a
40 gas distributing chamber having a plurality of exits arranged above the floor of the chamber; connections between said exits and the cylinders; and an inlet passage leading from below having an opening into the
45 chamber above the exits.

4. In an internal combustion engine the combination of a plurality of cylinders; valve cages therefor; the posts 29 arranged
50 at the sides of the valve cages; the valve securing bar 30 connecting the posts; the screws extending through the valve securing bar for exerting pressure on the valve cages and securing the valves in place; a distrib-
55 uting chamber; connections between the valve cages and the distributing chamber whereby the valve cages, connections, and distribut-
ing chamber may be removable as a unit.

5. A gas distributing chamber having a plurality of exits; and an inlet passage lead-
60 ing to said chamber from below, the opening from said passage to said chamber being above the exits leading from the chamber and the direction of the inlet passage being
65 transverse to the directions of the exits.

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

GILBERT J. LOOMIS.

Witnesses:

C. D. HIGBY,
BESSIE F. PARKER.