

W. FLOYD.

**STARTER FOR MOTOR CAR ENGINES.**

APPLICATION FILED JUNE 8, 1908.

**906,789.**

Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.



**Attest:**

Edgeworth's name  
Simon Farb.

William Floyd Inventor:

by *W. E. Kimbrey* Atty.

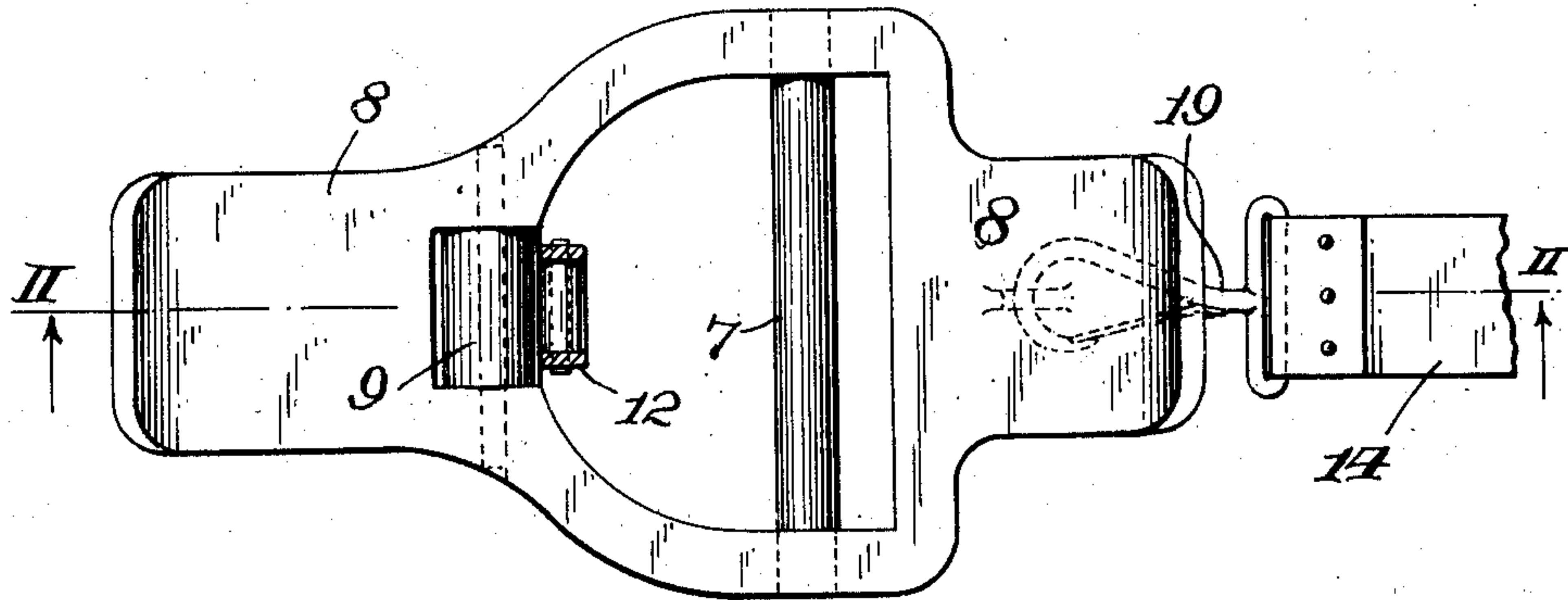
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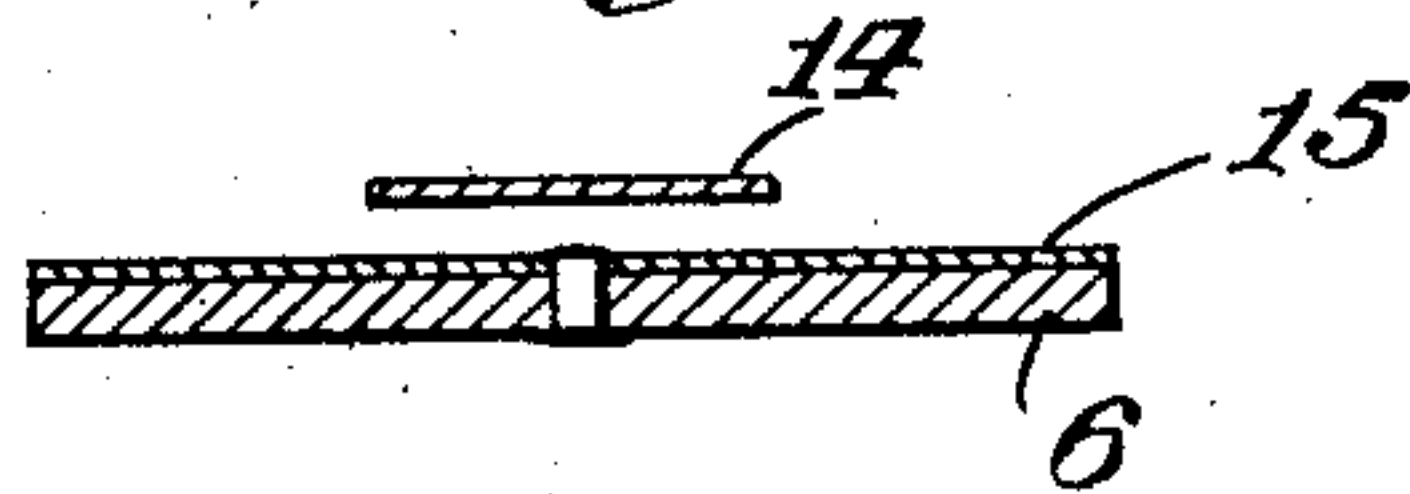
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2 SHEETS—SHEET 2.

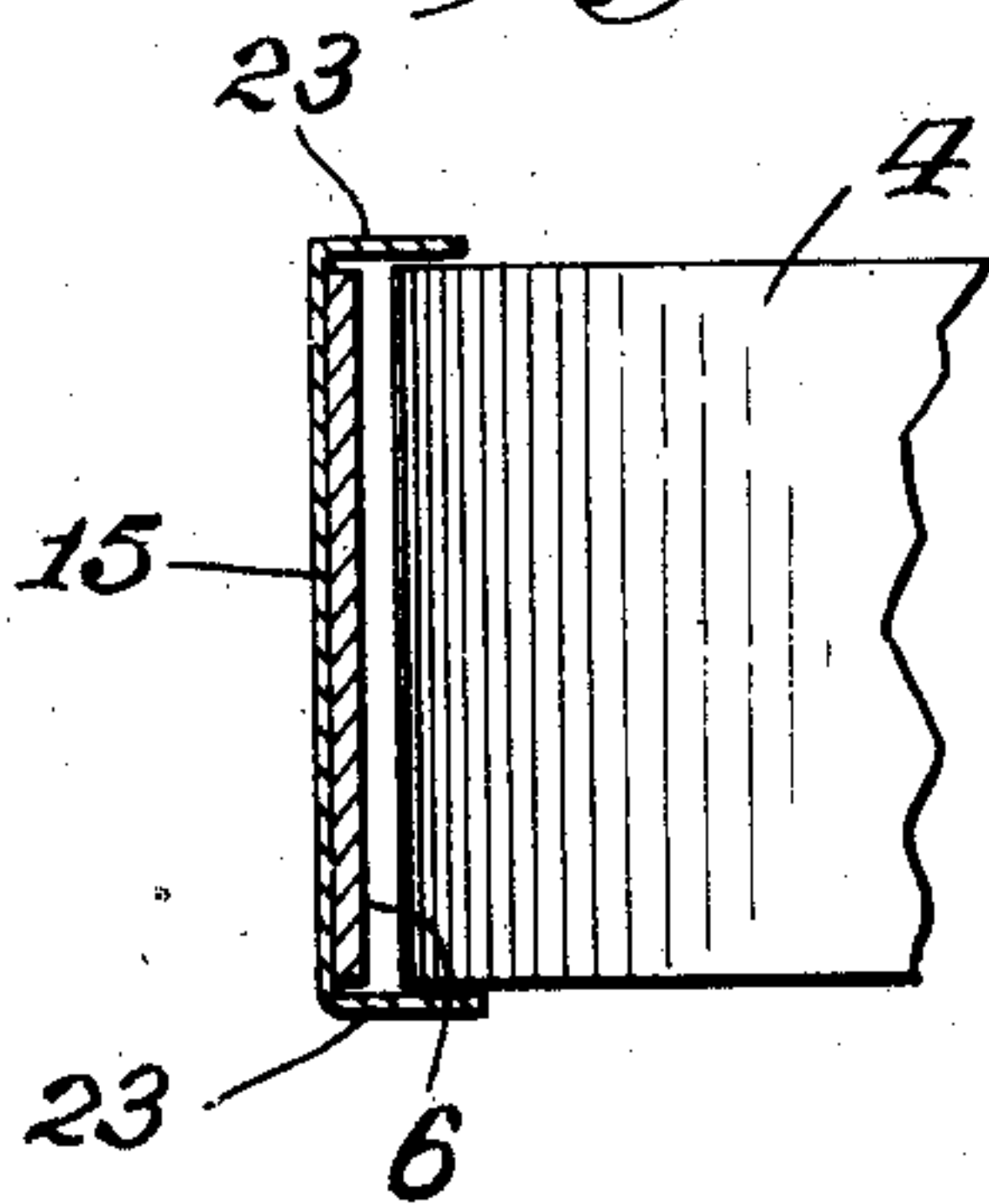
*Fig. 3.*



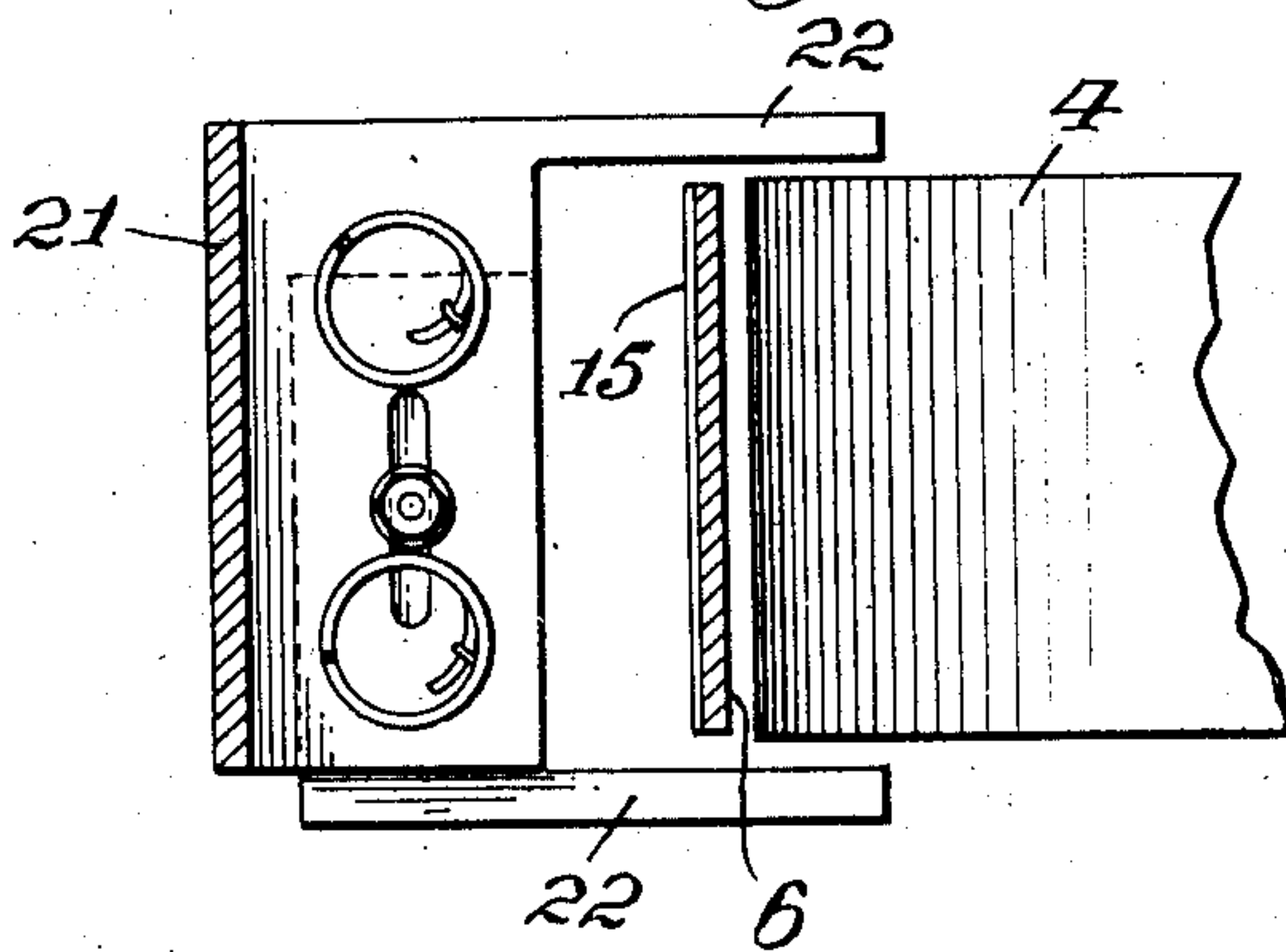
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



Attest:  
*Edgeworth*  
*Simon Farb*

*William Floyd* Inventor:  
by *H. H. Hines* Atty.



# UNITED STATES PATENT OFFICE

WILLIAM FLOYD, OF MASTIC, NEW YORK.

## STARTER FOR MOTOR-CAR ENGINES.

No. 906,789.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed June 8, 1908. Serial No. 437,300.

*To all whom it may concern:*

Be it known that I, WILLIAM FLOYD, a citizen of the United States, residing at Mastic, Long Island, State of New York, have invented certain new and useful Improvements in Starters for Motor-Car Engines, of which the following is a full, true, and concise specification.

This invention, a starter for motor-car and similar engines, aims to provide a mechanism of simple and reliable nature, whereby the driver of the motor-car, without dismounting, is enabled to rotate the crank-shaft or fly-wheel of the engine and thereby produce an initial compression of fuel required for setting the engine in motion, and the invention consists in the construction, operation and combination of the several parts hereinafter described whereby these and other desirable results are attained and whereby said mechanism is adaptable to different types of motor cars.

Referring to the two sheets of drawings forming a part hereof, Figure 1 shows in elevation a starting apparatus embodying my invention and applied to the fly-wheel of an ordinary type of motor-car; Fig. 2 is an enlarged sectional view of a portion of the apparatus with parts in elevation and showing the buckle in longitudinal section on line II—II of Fig. 3; Fig. 3 is a plan detail of the buckle showing the relation of adjacent parts; Fig. 4 is a sectional view of the girdle on line IV—IV of Fig. 2; and Figs. 5 and 6 are alternate details.

In the type of car with which the invention is illustrated the engine crank-shaft 1 is disposed between and parallel with the side-girders 2 of the car frame and also between the side-bars 3 of an interior engine frame. The fly-wheel 4 is located just beneath the flooring 5 which is under the operator's feet, in the relation indicated by Fig. 1, this being a familiar arrangement. The starting mechanism comprises a flexible band 6 of leather or similar material constituting a girdle embracing the fly-wheel. One end of the strap is connected to the cross-bar 7 of a buckle 8, while the other end or a connection thereto is passed through the buckle over a roller 9 therein and joined to a flexible cord or cable 10, which latter is trained over a fixed sheave 11 and from thence passes through the flooring 5 where it terminates in an operating hand-grip. In the present instance the end of the leather strap or girdle is connected

with the cable 10 by a flat chain 12 which works freely through the buckle and upon the roller, and the parts are so arranged that a pull on the handle will tighten the strap upon the wheel if the latter is not in motion, and a continued pull will move the strap or girdle in a circumferential direction, thereby rotating the wheel forwardly or in the direction indicated by the arrow.

A restoring mechanism, which includes a spring roller 13 and a flat wire 14 thereon, is connected to the girdle or preferably to the tail of the buckle as shown, for providing a sufficient yielding resistance to the forward pull to produce the initial gripping action and also for returning the buckle and girdle to original or normal position. As a matter of convenience the return wire is provided with a snap-hook 19 by which it is detachably connected to an eye in the buckle. A flat band of spring steel 15 is associated with the leather girdle, being preferably secured to the outer side thereof as shown in Figs. 2 and 4, for the purpose of facilitating the opening of the girdle when the actuating mechanism is released, and the said spring band also serves to strengthen the girdle and hold it out of contact with the wheel while the latter is revolving. The chain 12 is provided with an adjustable stop shown at 16 which limits its movement through the buckle and holds the girdle from drooping below the wheel. The fly-wheel may be forwardly rotated by pulling the handle in obvious manner so that compression and combustion take place within the engine and the wheel takes up its own rotation, whereupon the relative forward motion of the wheel with respect to the actuating mechanism automatically loosens the grip and allows the girdle to expand under the spreading action of the spring-band 15, while the spring roller serves to restore the girdle to its initial position. In order to insure such automatic release of the girdle, an abutment is provided against which the nose of the buckle may strike to prevent its further travel with the wheel. Such an abutment is shown herein as a spring buffer 17 the construction of which will be apparent from the drawing. A like abutment or buffer 18 is also provided on the opposite side of the fly-wheel for the purpose of limiting the movement of the buckle in the opposite direction, whether such movement is due to the normal action of the spring roller 13 or to a "back-fire" or accidental reverse rotation of



the engine. In the case of a backfire, the handgrip is jerked from the operator's grasp (which may obviously take place without risk of injury to him) and the tension in the actuating mechanism is thus immediately released, so that the stopping of the buckle against the abutment may serve to release or disengage the girdle from the wheel and thereby prevent damage to the mechanism. The ends of the buckle are preferably turned somewhat outwardly in order to make reliable engagement with their respective buffers.

The fixed parts of the starting mechanism are attached to the side-bars of the frame 2 and 3 above mentioned and are located in the plane of the fly-wheel, but in other types of cars these parts may be secured to such other fixed members as may be adjacent to the wheel and may be attached, if desired, to the car-body. As shown herein, the sheave 11 is journaled in a standard 20 that rests upon a guide-plate 21, both of which are clamped by a bolt to the flanges of the frame. The guide-plate 21 is adjustable toward and from the fly-wheel and forms a shelf support for the spring buffer 17 above described and at its inner end terminates in forked members 22 which embrace the peripheral edge of the fly-wheel to confine the girdle thereto. As shown in Fig. 6 the forked members 22 are relatively adjustable toward and from each other, in order to accommodate different thicknesses of fly-wheels. The spring buffer 18 is supported on a similar guide-plate shelf 23 adjustably clamped to the frame on the opposite side of the wheel. The roller of the spring return mechanism is conveniently mounted on the under side of the frame bars as indicated in Fig. 1 where it will exert a more or less constant pressure upon the buckle or girdle. The roller itself may be of any desired construction. In the modification shown in

Fig. 5 the girdle is confined to the fly-wheel by means of flanges or ears 23 carried by it and overlapping the face of the fly-wheel. Conveniently such flanges may be formed integrally with the steel expanding band 15.

Having described my invention what I claim and desire to secure by United States Letters Patent is:

1. A starter for motor-car engines comprising a buckle, a contractible girdle embracing the part to be revolved and having one end connected with said buckle, in combination with a chain connected to the other end of said girdle and passed through the buckle and constituting means for contracting and moving said girdle in a circumferential direction.

2. In a starter for motor-car engines, a buckle, a flexible girdle embracing the part to be revolved and having one end attached to said buckle and the other end passed therethrough and constituting an actuating connection for contracting and forwardly moving said girdle, in combination with means for returning said girdle in a reverse direction.

3. In a starter for motor-car engines, a fly-wheel gripping device including a buckle with an out-turned end adapted to cooperate with an abutment for arresting the movement of said gripping device.

4. In a starter for motor-car engines a fly-wheel gripping device including a girdle and a buckle in combination with a spring return for said device connected to the end of said buckle.

In testimony whereof, I have signed my name to the specification in the presence of two subscribing witnesses.

WILLIAM FLOYD.

Witnesses:

H. G. KIMBALL,  
CLIFFORD H. KLOS.