

No. 885,231.

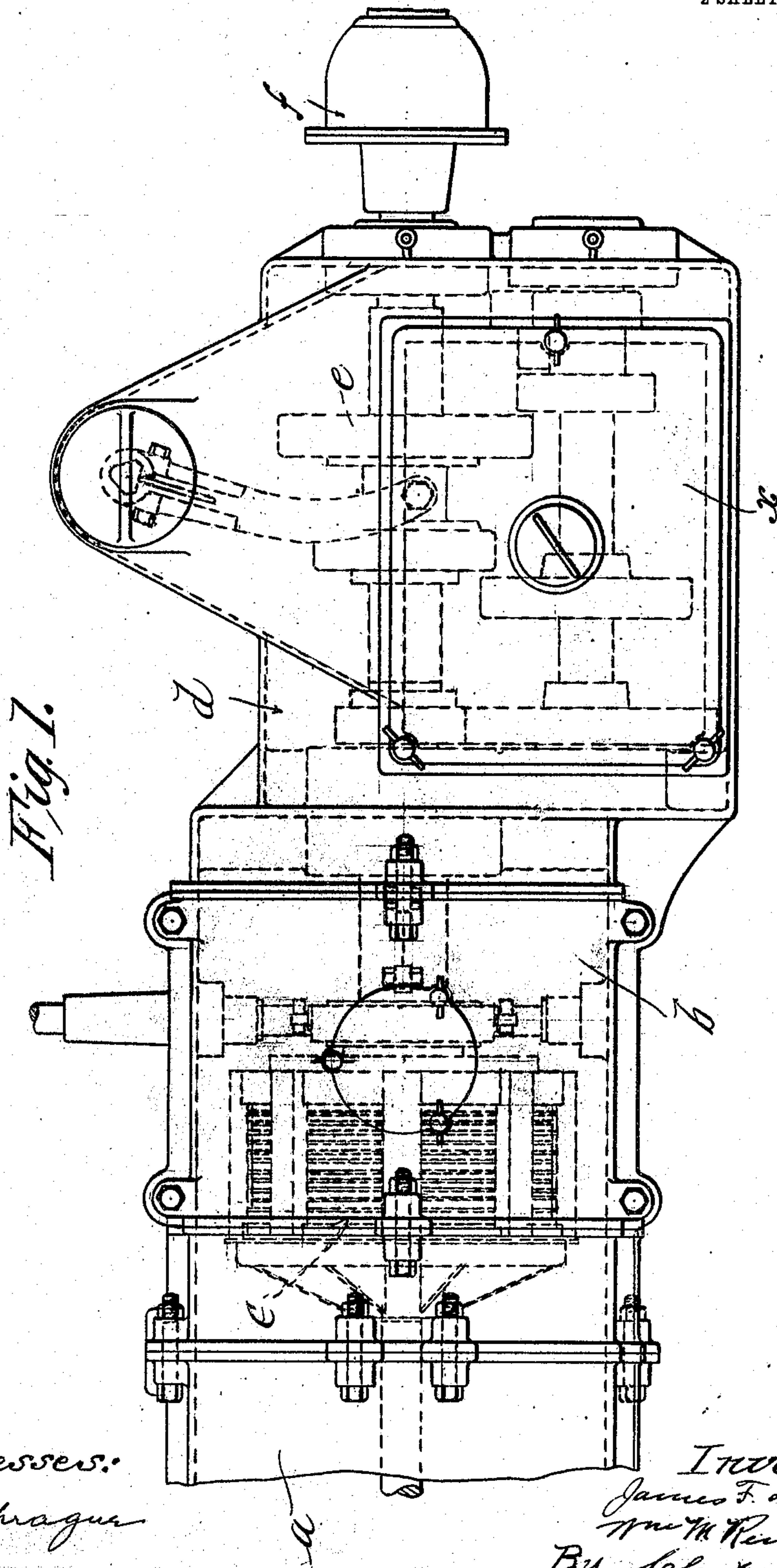
PATENTED APR. 21, 1908.

J. F. DURYEA & W. M. REMINGTON.

TUBULAR BASE FOR MOTORS.

APPLICATION FILED JULY 16, 1907.

2 SHEETS—SHEET 1.



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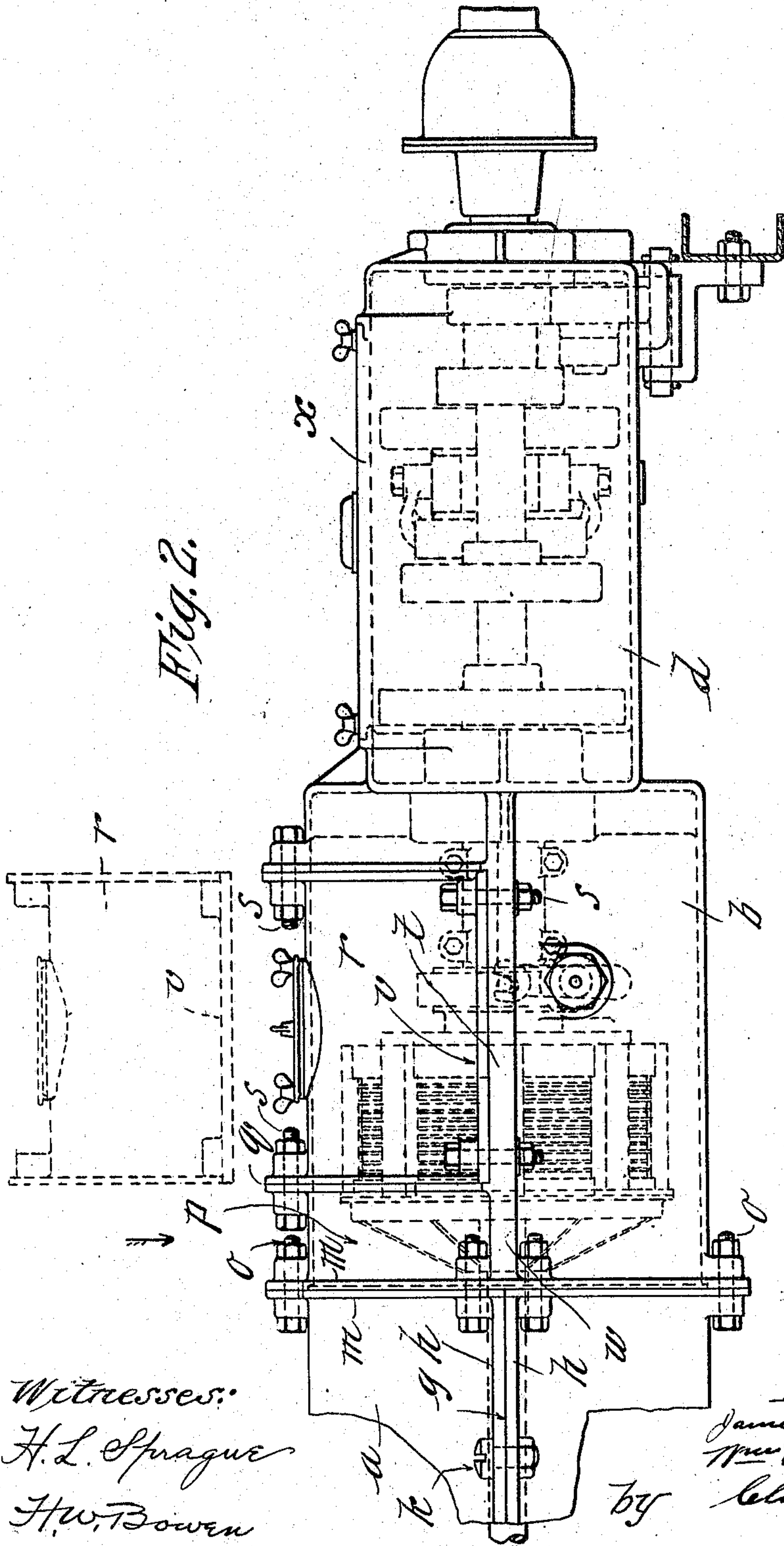
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# UNITED STATES PATENT OFFICE.

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## TUBULAR BASE FOR MOTORS.

No. 885,231.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed July 15, 1907. Serial No. 383,774.

*To all whom it may concern:*

Be it known that we, JAMES FRANK DURYEA and WILLIAM M. REMINGTON, citizens of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Tubular Bases for Motors, of which the following is a specification.

10 This invention relates, broadly, to the construction of power plants for self-propelled vehicles, and has special reference to the construction of the tubular base on which, and within which, various parts of the mechanism comprised in such plant is located. As  
15 generally constructed, this base is made up of separate compartments,—one for the crank-shaft of the engine, one for the clutch mechanism, and one for the variable speed  
20 transmission mechanism, these being arranged in the order named, that part on which the cylinders are mounted and which contains the crank-shaft being made in one piece, and the part containing the clutch  
25 mechanism being therefore made in a separate piece and bolted thereto, the transmission mechanism compartment being in a casing sometimes integral with that of the clutch, and sometimes in a separate member  
30 bolted thereto. In all cases, however, the clutch mechanism is in the central compartment of the casing, the whole structure being supported at opposite ends thereof only, the tubular construction providing sufficient  
35 rigidity to make this possible. It is necessary that the parts contained in these various compartments should be easily accessible. Therefore, that part of the base containing the crank-shaft is divided into two parts in  
40 of the plane of the crank-shaft,—the lower half of the casing being removable,—and it is also necessary to provide means whereby the clutch mechanism shall be readily inspectable or removable, and hence the upper part  
45 of this casing is made removable and frequently both of these casings must be opened at the same time.

The object of the present invention is to provide a casing construction whereby the  
50 lower part of one and the upper part of another contiguous casing bolted to it may be removed at the same time without weakening the central part of the whole tubular structure, whereby it might sag downward  
55 out of line.

The invention is clearly illustrated in the accompanying drawings, in which,—

Figure 1 is a top plan view of the casing showing part of the engine base containing the crank-shaft, the clutch-casing, and the  
60 transmission casing. Fig. 2 is a side elevation of the structure shown in Fig. 1, the upper part of the clutch casing being shown in dotted lines in its separated relation to the clutch casing.

Referring to these drawings, the complete  
65 base structure of the power plant consists of the portion *a* which constitutes a casing for the crank-shaft of the engine, the cylinders (not shown) being mounted in inverted position on the top thereof as usual, *b* indicating  
70 that portion of the base in which the clutch *c* is inclosed (this being shown in dotted lines) and *d* that portion of the base in which the variable speed transmission mechanism *e* is  
75 inclosed; *f* representing a universal joint such as is employed in gear-driven machines as distinguished from the chain driven.

Referring to Fig. 2, it is seen that the engine casing, by which term that portion *a* of  
80 the base will be hereinafter referred to, is divided longitudinally or substantially in the plane of the crank-shaft on the line *g*, the meeting edges of the casing on this line being provided with flanges *h*, through which bolts  
85 *k* may extend to secure the two halves of the casing together.

That end of the casing *a* contiguous to the casing *b* containing the clutch, is provided with a flange *m* as is also the clutch casing,  
90 whereby these two casings may be secured together by bolts *o*. Thus the upper and lower portions of the casing *a*, while they are bolted together along their median lines, are  
95 separately bolted to the clutch-casing thus permitting the separate removal of either part thereof from the clutch casing.

In the construction shown herein, the casing *d* containing the transmission mechanism is shown as integral with the clutch casing *b*,  
100 though this is an immaterial point and the casing *d* may be bolted to the casing *b*, if desired; and in some constructions, it is necessary to make the transmission casing as a  
105 separate member in order to conveniently machine it, though the disposition of the mechanism shown herein is such as to render it unnecessary in this case.

For the purpose of providing suitable means to support the entire base structure,  
110



when the lower part of the casing *a*, and the upper part of the clutch casing is removed, the clutch casing *b* is made with a tubular neck portion *p* extending unbrokenly entirely around the casing and located, as shown, between the flange *m* and a like flange *q*, which constitutes the border of the opening in the upper part of the clutch casing, which opening is closed by a removable section *r* of said casing which is shown in separated relation in said Fig. 2 in dotted lines. This removable section *r* fits closely in said opening in the casing *b* and is tightly bolted to the latter by bolts *s*, and when so bolted in place, the casing *b* is practically as strong as though the section *r* were integral therewith.

From the construction of the clutch casing, above described, it is apparent that even though the lower portion of the casing *a* be removed, and the section *r* of the clutch casing be removed at the same time, the tubular characteristic of the entire base structure is maintained, the neck portion *p* of the clutch casing constituting the connecting element between the upper part of the casing *a* and the lower part of the clutch casing *b*, this neck portion *p* being integral with the lower part of the casing *b*. This neck portion is strengthened by the ribs *m* and *q*, the latter merging into a longitudinally disposed rib *t* which constitutes practically a continuation of the ribs *h* of the casing *a*, and providing also a solid abutment for the flange *v* extending along each lower edge of the removable section *r* of the clutch casing.

It is thus clear that the capacity of the base as a whole to resist vertical stress in the direction of the arrow, shown in Fig. 2, when the lower part of the casing *a* and the section *r* of the casing *b* are removed is equal to the resistance to fracture of the cross sectional area of the neck *p* at the point *w*, Fig. 2. This construction of the base thus makes it possible to remove the entire lower half of the engine casing whereby free access may be had to all crank connections and crank-shaft bearings and permits also the removal of the section *r* of the clutch case at the same time without disconnecting the main elements of the base, whereby possible dis-alinement of the various mechanisms contained in said base might occur.

The transmission casing is provided with an opening as usual through which access may be had to the mechanism therein, this opening being closed by a cover *x*.

What we claim is:—

A base-piece for the power plant of a self-propelled vehicle consisting of tubular sections secured together end to end, a portion of the wall of each section being removably secured thereto; that part of the wall of the base-piece lying between two of said removable wall portions being of continuous tubular form in cross section and integral with the section in which it is located.

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