

L. E. JONES.
ELECTRIC COLLECTOR FOR TURN TABLES.
APPLICATION FILED AUG. 15, 1910.

977,653.

Patented Dec. 6, 1910.

3 SHEETS—SHEET 1.

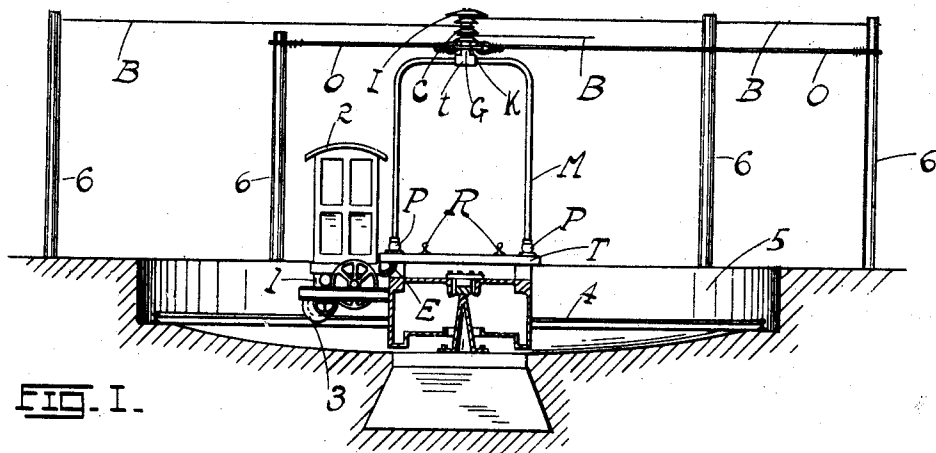


FIG. 1.

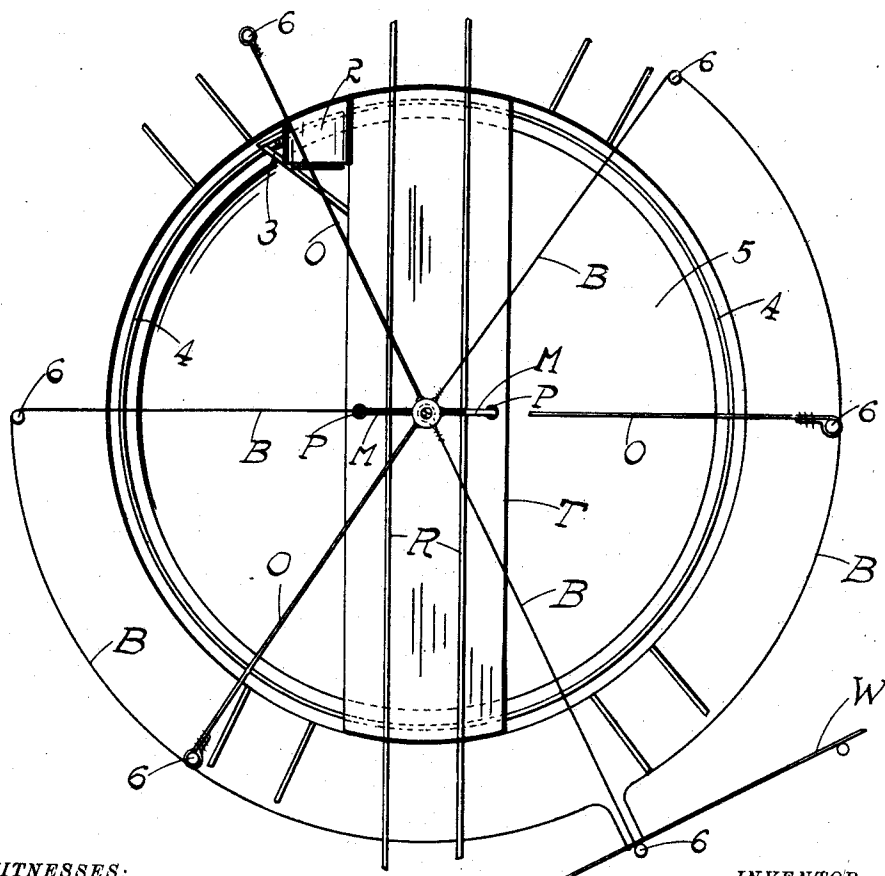


FIG. 2.

WITNESSES:

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Fannie C. Weber

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Laban E. Jones.

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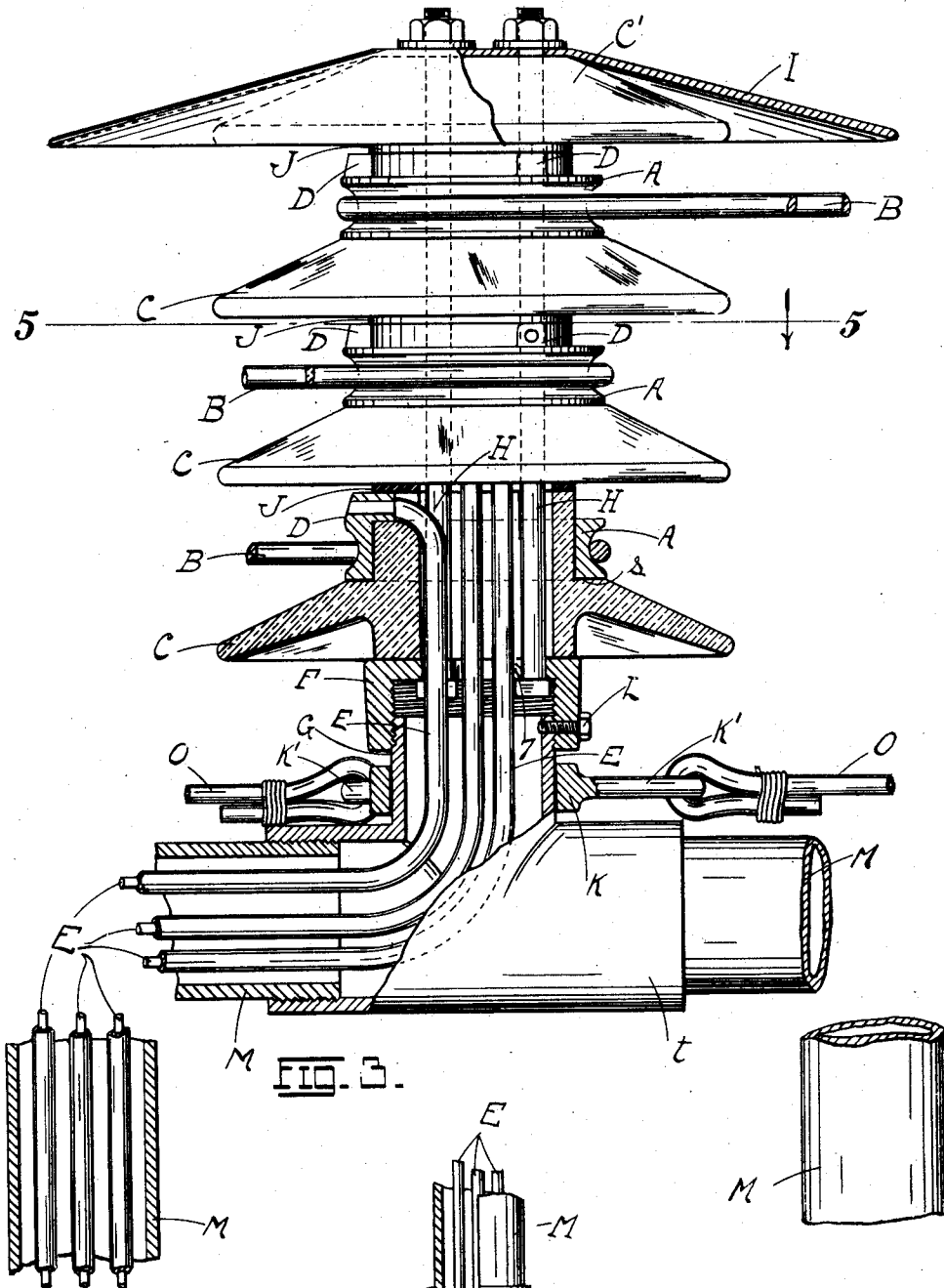
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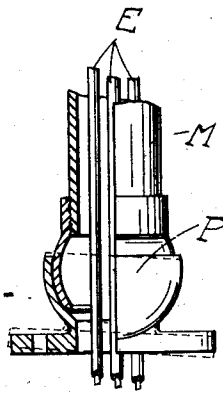
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3 SHEETS—SHEET 2.



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FIG. 4.



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3 SHEETS—SHEET 3.

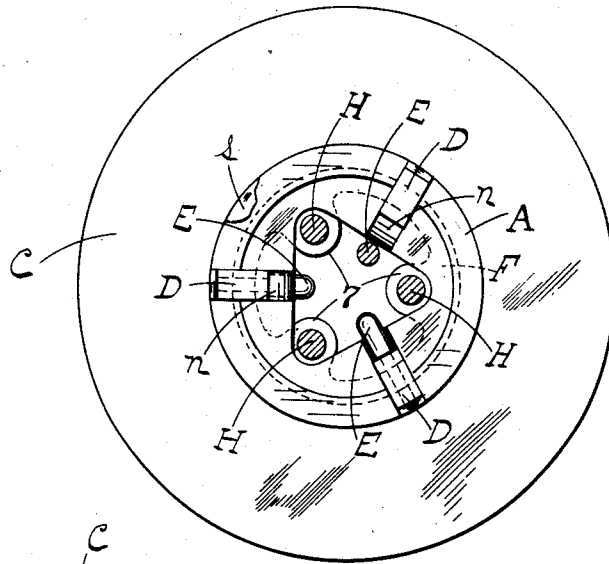


FIG. 5.

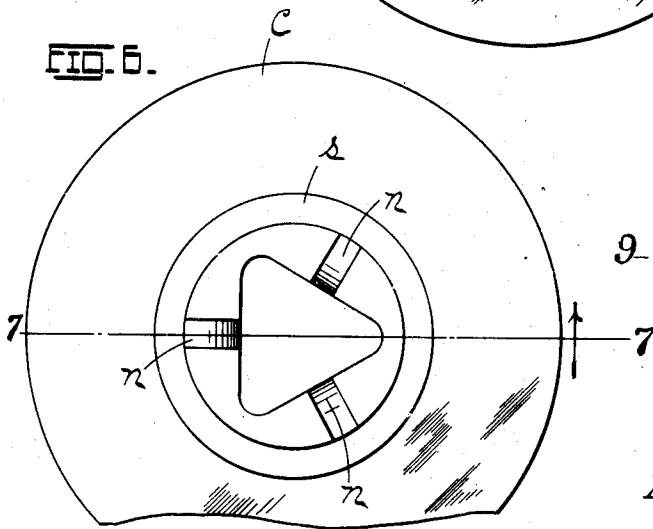


FIG. 6.

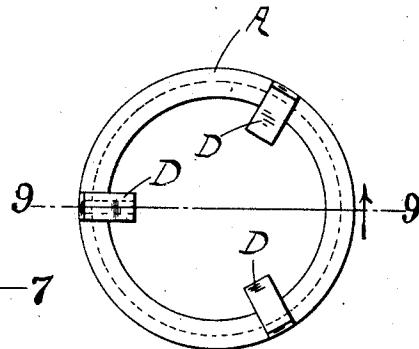


FIG. 8.

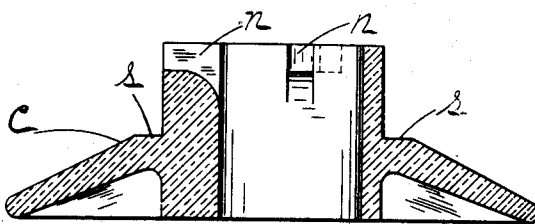


FIG. 7.

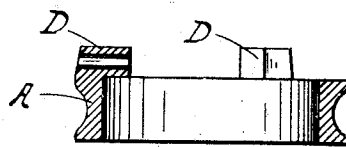


FIG. 9.

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ELECTRIC COLLECTOR FOR TURN-TABLES.

977,653.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed August 15, 1910. Serial No. 577,253.

To all whom it may concern:

Be it known that I, LABAN E. JONES, citizen of the United States, residing at Anaconda, in the county of Deerlodge and State of Montana, have invented certain new and useful Improvements in Electric Collectors for Turn-Tables, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in electric collectors for turntables; and it consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a combined vertical section and elevation of a turntable shown more or less conventionally, with my invention applied thereto; Fig. 2 is a top plan thereof; Fig. 3 is a combined elevation and section of the conducting head of the collector, and a portion of the pipe-arch on which the head is mounted; Fig. 4 is a combined section and elevation of a conventional form of flexible joint by which the pipe-arch is secured to the turntable; Fig. 5 is a cross-section on the line 5—5 of Fig. 3; Fig. 6 is a top plan of one of the insulating disks (broken); Fig. 7 is a vertical section on line 7—7 of Fig. 6; Fig. 8 is a top plan of one of the conducting rings; and Fig. 9 is a section on the line 9—9 of Fig. 8.

The object of my invention is to provide suitable means for conveying an electric current to the driving and operating mechanism (motor, switch box, reversing controller, brake-lever and the like), of an electric railway-turntable, the distribution of such current being effected through a series of conducting wires deriving their respective currents from corresponding feed-wires which lead from a common line-wire the current of which is supplied from any suitable source of electrical energy, such as a dynamo.

The collector is formed of a number of independent sections, which may be increased or diminished at will, each section being separable from its adjacent section, and all being disposed about the axis of rotation of the turntable. The arrangement is susceptible of adaptation to other revolving bodies, such as merry-go-rounds, dredging apparatus, centrifugal machines and the

like, as will hereinafter more fully appear from a detailed description of the invention which is as follows:—

Referring to the drawings, (which show the application of the invention to a turntable) T represents in mere outline (and without an attempt at details) a conventional form of turntable provided with the usual track-rails R, R, for the support of the locomotive. No attempt is here made to illustrate the details of the electric motor 1 by which the table is driven, nor any portion of other operating machinery, all these being well understood in the art, and generally located in the operator's cap 2 built to one side at one end of the turntable, the traction wheel 3 actuated by the motor 1, 70 running on the circular rail 4 in the pit 5.

The invention proper is confined to the manner of collecting and conveying the electric current to such machines and motors, and for the purpose of the present description the inner conducting wires are shown leading conventionally to the cab 2, no attempt being made to illustrate the precise points of connection to the machines, as these matters are fully understood in the art. Spanning the table track-rails R, R, and secured centrally to the turntable by any form of hollow flexible or ball and socket or equivalent joint P is a vertical pipe-arch or hollow staff M through one (or both) of the 85 pipes or legs of which the inner insulated conducting wires E are led to the motor or motors aforesaid, the purpose of the flexible joint at the base of the pipes being to permit the arch to adjust itself and remain in as nearly a vertical position as possible, with the tilting of the table under the weight of the locomotive (a balancing of the table not being necessary or desirable where the table is driven by machinery).

Located at the crown of the pipe-arch M is a tee *t* terminating in a vertical leg or neck of pipe G about which pipe-neck is passed loosely a ring or collar K provided with a series of radial arms K' which serve as means for securing or anchoring the inner ends of suitable guy-ropes O, the outer ends thereof being secured to any convenient rigid support such as a post 6. The axis of the pipe-neck G corresponds to the axis of rotation of the table, the guy-ropes O main-

taining said neck in central position about said axis during the turning of the table, the joints P "breaking" sufficiently to maintain the pipe-arch M in a vertical position in the slight tilt to which the table is subjected when a locomotive passes over the rails R, R. The pipe G is surmounted by a screw-cap F (open at the top) which is prevented from unscrewing by the cap-screw L as clearly obvious from the drawing.

Resting on the screw-cap F is the first of a series of hollow-hooded insulator disks C (of porcelain or other equivalent material), said disk supporting a second similar disk C, and the second supporting a third disk C, the adjacent ends of the disks being separated by yielding, preferably rubber washers or packing rings J, suitable for taking up any irregularities in the surfaces of the ends of the disks, and preventing the strain to which the disks are subjected (as presently to be seen) from cracking the insulating material.

The collector is surmounted by a metallic hood I which furnishes protection against the weather, a spacing disk C' being interposed between the hood and the last of the series of insulating disks C. The hood I, and the several disks C and C' are tied together and to the screw-cap F, by means of a series of bolts H which pass respectively through lugs 7 in the top of the cap around the opening in the cap, through the common passage-way formed by the collection of disks, and through the crown of the hood as shown.

Formed on the outside of each insulator C at the base of the hood portion thereof, is an annular shoulder s on which rests a peripherally grooved metallic conducting ring A, one end (preferably the upper) of each ring being provided with a series of inwardly projecting locking lugs D some of which are provided with an opening or passage-way for the insertion of the adjacent bare end of an inner conducting wire E, the lugs D being received in notches or recesses n formed in the walls of the insulator, said walls being thickened at these points to afford a sufficient bearing and support for the lugs D which thus serve to anchor and lock the ring to the insulator. The wires E are coupled to the lugs D of the several rings in such a way as to prevent crowding and bunching thereof in the narrow (triangular) passage-way of the series of assembled disks.

For convenience, the disks C and their rings A may be regarded as a conducting head secured to the cap F, the axis of the head corresponding to the axis of rotation of the turntable and maintained in proper position and relation thereto mainly by the guy-ropes O, and incidentally by the series

of radiating feed-wires B looped about the grooves of the rings A. The ends of the wires thus looped about the rings A are bare, being held in place and firmly seated in the grooves by the tension of the wires in the connecting spans, the sliding or rubbing contact between the rings and loops of the wires keeping the rubbing surfaces clean (the conducting head of course rotating with the turntable). The wires B lead from a common line wire W, the tension of the intermediate spans being maintained in the wires in any mechanical manner not necessary to describe, the drawing merely showing diagrammatically the disposition of said wires relatively to the conducting head. Incidentally, it may be stated that the wires might be stretched from posts 6, the same as the ropes O.

The operation will be readily understood from the drawings and description. Briefly stated, the current flows from the line-wire W through each of the feed-wires B, into the rings A, thence into each of the inner conducting wires E, and finally to the point of consumption or motor in the cab 2. As the turntable rotates, the pipe-arch M, and the conducting head rotate with it about the same axis, the arch adjusting itself, as before stated, to any inclination to which the table is subjected under the weight of the locomotive.

In the rotation of the conducting head, the surfaces of the grooves of the rings A are kept clean, allowing the current to pass freely into the rings. Obviously, the conducting head of the character here described might with equal propriety be used on other rotating bodies and apparatus, examples of which have been cited above.

By "staff" as used herein is meant any hollow trunnion, boss, tube, pipe or conduit through which a conducting wire may be passed for leading the current away from the ring A.

Having described my invention, what I claim is:—

1. In combination with a turntable rotatable about a fixed axis and provided with a hollow staff disposed about said axis and rotatable with the turntable, an electric conductor secured to said staff and rotating therewith, and a fixed feed member located adjacent to the turntable and making rubbing contact with the conductor and supplying a current thereto.

2. In combination with a turntable rotating about a fixed axis, an electrically conducting ring secured to the turntable about said axis and rotating with the turntable, and a fixed feed member making contact with the ring and supplying a current thereto, and a conductor for leading the current away from said ring.

3. In combination with a turntable rotating about a fixed axis, a staff on the turntable provided with a terminal disposed about said axis and rotating with said turntable, a conducting ring anchored to said terminal, and a fixed member looped about the ring and making rubbing contact therewith and feeding a current thereto, and means for leading the current away from said ring.

4. In combination with a turntable rotating about a fixed axis, a metallic ring coupled thereto and insulated therefrom and disposed about the axis of rotation of the turntable, an electric-feed member making rubbing contact with said ring, and a conductor leading from the ring to a suitable point on the turntable.

5. In combination with a turntable, a hollow staff having a terminal disposed about the axis of rotation of said table, a collector-head comprising one or more metal rings coupled to and insulated from said terminal and from one another, means for feeding a current to each of the rings, and means for conducting the current from the rings through the staff to a point on the turntable.

6. In combination with a turntable, a pipe-arch flexibly jointed thereto at the center of the table and terminating in a hollow pipe section disposed about the axis of rotation of the turntable, an electric collector head secured to said pipe section and comprising a series of one or more metal rings insulated from said pipe and from one another, guy-ropes terminating in a ring passed loosely over the pipe-section, feed wires stretched tautly from a source of electric supply and looped about the rings, and conducting wires passed through the pipe-arch and leading from the rings to a suitable point on the turntable.

7. In combination with an electrically propelled turntable, a collector head disposed about the axis of rotation of the turntable and comprising a bottom insulator disk having an outer annular shoulder, a metal ring resting on the shoulder and provided with an inwardly projecting perforated lug engaging a recess formed in the wall of the disk, a series of similar disks and rings superposed over the first disk, the disk being spaced by a yielding packing ring, a hood surmounting the top disk, a series of bolts passed through the center of the hood and through the common passage-way formed by the assembled disks, a hollow member engaging the bottom disk and anchoring the adjacent ends of the bolts, means for feeding a current of electricity to each ring from an outside source, and wires leading from the perforated lugs of the rings through the collector head for convey-

ing the currents to a suitable point on the turntable.

8. In combination with a turntable, a pipe-arch secured thereto and terminating in a hollow neck disposed about the axis of rotation of the turntable, a screw-cap on the neck, a collector comprising a grooved metal ring insulated from the screw-cap and rotating therewith and with the turntable, a feed wire looped about the groove of the ring and making rubbing contact therewith, a ring passed over the neck, guy-ropes leading from the ring, and a conducting wire leading from the grooved conducting ring through the hollow neck and pipe-arch to a point on the turntable.

9. In combination with a turntable, a hollow rotatable insulating disk provided with an outer annular shoulder, a peripherally grooved conducting ring resting on the shoulder and enveloping the walls of the disk, a perforated lug formed on the ring and projecting inwardly, a recess being formed in the disk wall for the reception of the lug and thereby lock the ring to the disk, a feed member engaging the groove of the ring and making rubbing contact therewith, and a wire leading from the lug of the ring through the opening of the disk for conducting the current to a suitable point of consumption on the turntable.

10. In combination with a turntable, a tubular collector head for an electric current comprising a series of hollow insulating disks assembled end to end, means for yieldingly retaining the same against displacement, a metal ring encompassing each disk and locked thereto, a series of feed-members engaging the peripheries of the rings and making rubbing contact therewith, and conducting members leading from the several rings through the common passage-way of the assembled disks for conveying the currents to suitable points of consumption on the turntable.

11. In combination with a turntable, an electric collector member comprising a hollow insulating disk, a metal ring encompassing the same and locked thereto, and means for securing a conducting wire to the ring and leading the same through the disk.

12. In combination with a turntable, an electric collector member comprising a hollow hooded insulating disk provided with a peripheral shoulder at the base of the hooded portion, a peripherally grooved metal ring resting on the shoulder, interlocking means between the ring and the disk, and conducting wires leading from the interlocked portions of the ring through the disk to a suitable point on the turntable.

13. In combination with a turntable, an electric collector member comprising a hollow insulating disk, provided with a periph-

eral shoulder at a point between the ends of
the disk, a peripherally grooved metal ring
encompassing the walls of the disk and rest-
ing on the shoulder, inwardly projecting
5 perforated lugs formed at the end of the
ring above the shoulder, the walls of the
disk being recessed to receive the lugs, the
perforations in the lugs receiving the ends

of suitable conducting wires traversing the
disk.

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

LABAN E. JONES.

Witnesses:

R. D. COLE,

WARREN JENNEY.