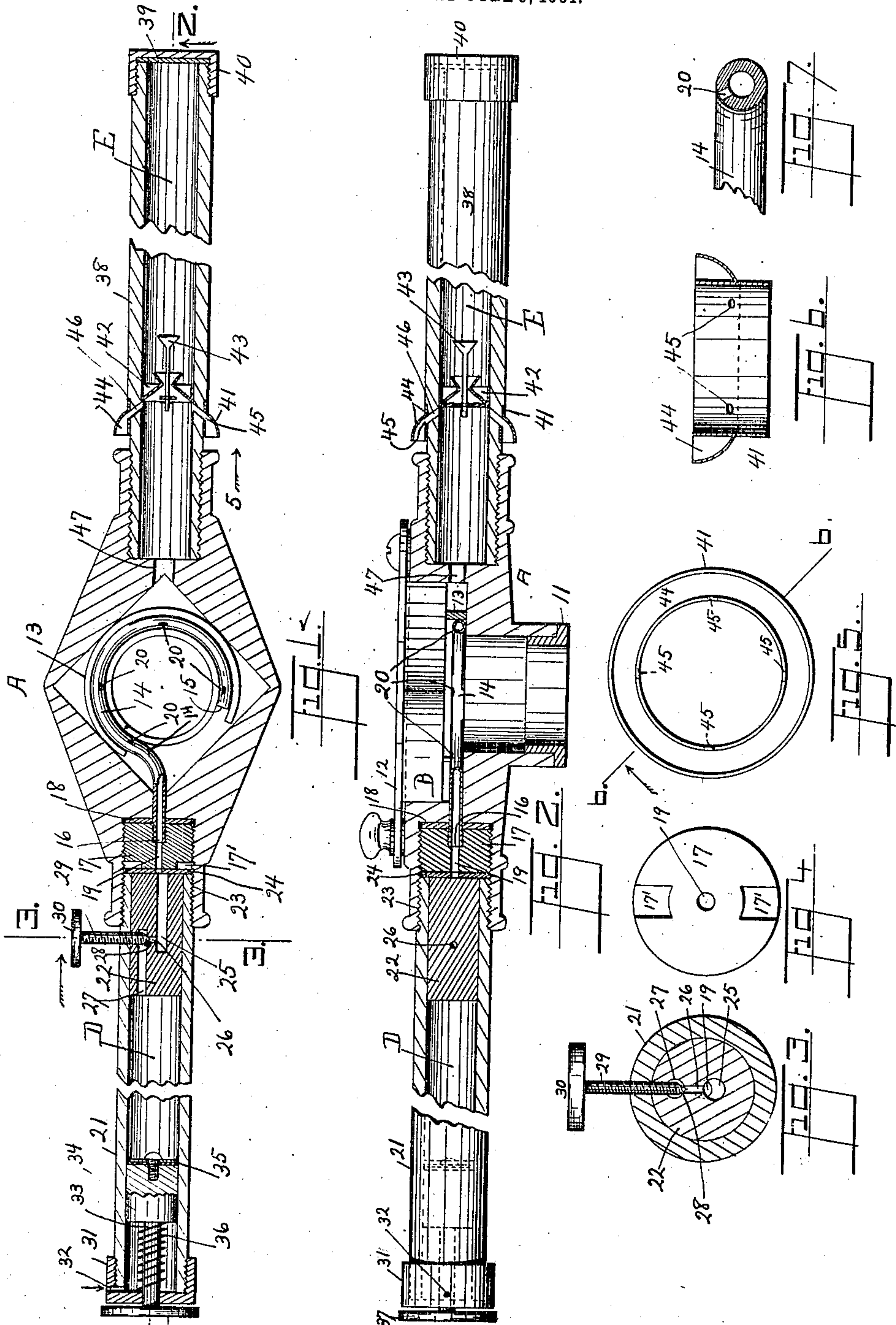


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PATENTED DEC. 4, 1906.

J. ROEMER.
THREAD CUTTING DEVICE.
APPLICATION FILED JUNE 9, 1904.



WITNESSES:

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THREAD-CUTTING DEVICE.

No. 837,422.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JULIUS ROEMER, a citizen of the United States of America, and a resident of Shelby, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Thread-Cutting Devices, of which the following is a specification.

The object of my invention is to provide a device connected with or adapted to be attached to devices for cutting or forming screw-threads or grooves upon pipes or other cylindrical objects, by the use of which lubric material in sufficient amount to prevent undue heating or friction may be easily and quickly supplied to the surface under formation and to provide means for catching the waste oil when the instrument is at rest.

To such ends my invention consists in substance of a threading or grooving device or die, means for holding the same in position, means for imparting a groove or thread formative movement to the die-holder, a reservoir for lubric material, a lubric-material-feeding device adapted to feed lubric material to the groove or thread-points of formation, and means for receiving and retaining the excess lubric material, although it is not to be understood that my invention is limited to a device comprising at once all the devices and parts before mentioned, as the same consists in the particular construction of certain devices and parts and the particular construction, combination, and arrangement of certain devices and parts, all as more specifically set forth in the specification and pointed out in the claims.

While not limited to use therewith, as the same may be easily applicable to grooving or screw-threading or forming machines or devices of every form, my invention is more particularly designed and adapted for use in screw-threading devices of the ordinary hand-stock form shown in the drawings, wherein similar letters or numerals of reference designate like or equivalent parts wherever found throughout the several views, and in which—

Figure 1 is a view, partially in central longitudinal section, of a hand-stock for holding a screw-threading die, showing the application of my device for supplying lubric material to the surface to be threaded and also the means for catching and retaining the overflow of surplus lubricating material. Fig. 2 is a longitudinal view thereof, partially in

section, taken on the line 2 2 of Fig. 1 and looking in the direction of the arrow at the end thereof, the thread-cutting die omitted from Fig. 1 in order to better show the lubricating mechanism being shown in full lines in proper position therein. Fig. 3 is a view thereof on an enlarged scale in cross-section, taken on the line 3 3 of Fig. 1 looking toward the right in the direction of the arrow adjacent such line. Fig. 4 is a view looking in the direction of the arrow in Fig. 1 of the feed-coil-securing plug which abuts against the oil-reservoir-stopping-valve plug forming the central portion of Fig. 3 as the same appears when removed from the socket-piece of the die-stock. Fig. 5 is a view in detail of the waste-oil-catching thimble removed from the stock as the same would appear looking in the direction of the arrow 5 in Fig. 1. Fig. 6 is a view of the waste-oil-catching thimble shown in Fig. 5, taken in cross-section on the line 6,6 thereof; and Fig. 7 is a detail view in cross-section of one side of the lubricating-coil, showing the angle at which the feeding orifices or perforations are formed therein.

Referring to the drawings, the reference-letter A designates the socket of the hand-stock, which is of the ordinary well-known form, adapted to receive a removable screw-thread-cutting die B of any desired diameter and pitch and also a suitable removable centering bushing or collar, held in position by a set-screw (not shown) and the die being secured by the swinging cover-plate 12, all of which parts are of any form of construction, usually the one in common use.

Located at the bottom of the die-cavity is usually a washer-ring 13, upon which the die rests, and within this washer-ring lies the lubricating-coil 14, which is of slightly less thickness in cross-section than is the washer-ring B, being in die-stocks adapted for use in threading one-inch pipe usually of from three-sixteenths to one-fourth of an inch diameter in cross-section and being formed of suitable small metallic piping bent into the shepherd's crook form shown, closed at the outer end 15 and having its open inner end 16 inserted in a metallic plug 17, which is screwed firmly upon the end of such coil 14 and also into the threaded handle-cavity of the socket A, the thread of which cavity, as well as the male and female threads of the plug 17 and the male thread on the end of the coil 14, are all of the same pitch, by which construction and a suitable washer or gasket

18 being placed on the end of the coil 14 before the plug 17 is screwed home thereon a tight joint is made between such coil and plug, and at the same time the coil is screwed
5 firmly in position in the die-stock A, and to facilitate the screwing and unscrewing of the plug 17 the same is provided with the side slots 17', adapted to receive the end prongs of a split screw-driver of the well-known
10 form, the central portion still forming a tight joining-surface.

The plug 17 is provided with a central longitudinal passage or channel 19 in communication with the lubricating-coil 14, and such
15 coil is provided on the upper inner peripheral wall with a plurality of perforations 20, the axes of which are inclined inward toward the axis of the coil in such manner that the lubricating material passing therethrough will be
20 directed upward and inward against the peripheral surface of the cylindrical body in the stock desired to be threaded, so as to thoroughly lubricate the same and the lower cutting-threads of the die.

25 Screwed firmly into the handle-cavity of the die-stock A, containing the plug 17, is the pipe or hollow handle-piece 21, forming the reservoir D for holding the oil or other lubricating material which is to feed the coil 14 by
30 way of the channel 19 of the plug 17 through the valve-plug 22. This valve-plug 22 is usually of brass and is driven tightly into the end of the pipe 21, so that the outer end of such plug is flush with the end of such pipe
35 bearing the male screw-thread 23, by which the same is secured in the die-stock A in the well-known manner. A washer 24, of leather or other suitable material, is compressed between the plug 17 and the pipe 21
40 and plug 22 when the pipe 21 is screwed firmly into the socket A.

The valve-plug 22 is provided with the longitudinal passage 25 in communication at the outer end with the passage 19 of the plug 17
45 and by way of the transverse valve-passage 26 with a similar longitudinal passage 27 in free communication at its inner end with the oil-reservoir D, the transverse valve-passage 27 being provided at the upper end with the
50 valve-seat 28, closed by the needle of the screw-threaded needle-valve stem 29, actuated by the thumb-nut 30.

The outer end of the pipe or hollow handle-piece 21 is closed by a cap 31, having the
55 air-vent 32, through the center of which cap passes the piston-rod 33, carrying the piston-plunger 34, carrying at its inner end the cap-washer or air-packing valve 35, of the form common in ordinary bicycle air-pumps, and
60 surrounding the piston-rod 33, between the cap 31 and the outer end of the plunger 34, so as to normally keep such plunger pressed inward into the reservoir D, is the spiral spring 36, such plunger being stopped by an
65 actuating-head 37, secured upon the outer

end of the piston-rod 33, which head is usually of slightly larger diameter than is the cap 31, as shown. The other handle-pipe 38 is screwed into the die-socket A in like manner and being closed at the end by a washer 39,
70 held in position by a screw-cap 40, its outer end portion lying between the oil-catching thimble 41, and such cap 40 constitutes the waste-oil-retaining reservoir E, the end of which reservoir E nearest to the die-stock A
75 is closed by a valve-thimble 42, usually of the form shown, carrying a gravity-valve 43 of the form shown, which when the reservoir E is uppermost will be closed so as to prevent any of the oil in such waste-oil reservoir E
80 from passing out through the same toward the die-stock A, and that when this position is reversed and the reservoir D is uppermost such valve will be in the open position shown in the figures. Secured upon the outer per-
85 phery of such reservoir E, between the valve-thimble 42 and the die-stock A, is the waste-oil-catching thimble 41, having the annular oil-cup 44, which is shown in detail in Figs. 5 and 6, the holes 45 in the inner an-
90 nular wall of which are in registry with holes 46, formed in and through the wall of the pipe. It will be seen that when E is underneath and the valve 43 in the open position shown in Fig. 1 any waste oil in the inside
95 of the die-stock will pass to the valve 43 by way of the orifice or passage 47 in such stock, and any waste oil held on or flowing onto the outside thereof will gradually drip down into the annular drip-cup 44 and pass to such
100 valve by way of the holes 45 and 46. Usually to slightly retard the flow of oil to the lubricating-coil 14 the axis of the passage 19 of the plug 17 when the parts are in position is slightly staggered to the axis of the
105 outlet-passage 25 of the valve-plug 22; but, if desired, the same may be made coincident.

The operation of the device is as follows: The reservoir D being about half filled with oil or other lubric material and the parts
110 being in the position shown in Fig. 2, with the die B secured in position by the cover-plate 12, the stock is placed upon the end of the pipe or body to be threaded, the same passing through the bushing 11, which is of the
115 same size as such pipe so as to hold same straight until the end of such body comes in contact with the lower cutting teeth or threads of the die B, the body to be threaded being secured in a horizontal position. The
120 oil-reservoir D is then brought to an upright position, the needle-valve closed by rotation of the thumb-nut 30, and a sufficient quantity of oil is then forced out through the perforations 20 of the lubricating-coil 14 by
125 drawing out the piston 34 and releasing the same, so that the force of the spring 36 will cause an air-pressure to be generated in the air-filled space of the reservoir D above the oil. If then the needle-valve 29 is slightly
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opened, such air-pressure will cause the oil to be forced out through the perforations 20 of the lubricating-coil 14 in a plurality of fine streams and directed against the lower cutting-teeth of the die B and the surface of the article to be cut adjacent thereto. The die-stock is then rotated in the usual manner and the flow of oil regulated as the work progresses by proper manipulation of the head 37 and the valve thumb-nut 30.

One of the chief advantages of my invention lies in the fact that the oil is directed upon the stock and the dies at the cutting-point, and that the quantity of oil directed upon the stock may be unerringly regulated to suit the varying qualities of dies and stock.

As before stated, the main and principal idea of my invention may without departing from the scope thereof be applied to other devices than hand-stocks, and I do not limit myself to any particular form thereof; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a die-stock adapted to receive a die, of a lubricating-coil surrounding the receiving-orifice, a plug securing the coil in the die-stock, a hollow handle forming a reservoir secured to the die-stock, oil-forcing means in the handle, said plug having a passage for permitting oil to pass from the hollow handle to the coil and a valve for controlling the passage of oil to the coil, substantially as described.

2. The combination with a die-stock adapted to receive a die, of a lubricating-coil surrounding the stock-receiving orifice adjacent to the die-stock, a plug securing the coil in the die-stock, having a passage therethrough in communication with the coil, a hollow handle forming a reservoir secured in the die-stock, a plug for closing the reservoir and having a longitudinal outlet-passage in communication at one end with the passage of the coil-securing plug and at the other with a passage similar to itself by way of a transverse passage provided on one side with a valve-seat, a valve, and means for forcing the lubric material from the reservoir through the plugs and coil, substantially as set forth.

3. The combination with a die-stock adapted to receive a die, of a lubricating-coil surrounding the stock-receiving orifice adjacent to the die-stock, a plug securing the coil in the die-stock having a passage therethrough in communication with the coil, a hollow handle forming a reservoir secured in the die-stock, a plug having passages extending from opposite ends and overlapping each other, a transverse passage connecting said overlapping ends, said passages being in communication with the passage in the coil-securing plug, a valve controlling said transverse passage and means for forcing oil from the

hollow handle through said passages when the valve is open, substantially as described.

4. The combination with a hand die-stock having a plurality of handles of oil-feeding means carried by one handle and oil-collecting means carried by another handle, substantially as described.

5. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock, and means for directing the waste oil to the reservoir thus formed by the handle, substantially as set forth.

6. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock and forming a reservoir, and a valve adapted to open when the handle is below the die-stock and close when it is above said stock located in the handle adjacent to the stock and means for directing oil through said valve to the reservoir, substantially as set forth.

7. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock and forming a reservoir, a thimble provided with perforations secured upon the handle with such perforations in registry with similar perforations arranged to direct the oil into the handle-reservoir, and an annular drip-cup secured to the thimble and a check-valve for preventing backflow of oil, substantially as set forth.

8. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock and forming a reservoir, a thimble provided with perforations secured upon the handle with such perforations in registry with similar perforations arranged to direct the oil into the handle-reservoir, an annular drip-cup secured to the thimble, and a perforation forming a communication between the reservoir in the handle and the die-cavity of the stock and a check-valve for preventing backflow of oil, substantially as set forth.

9. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock, a valve adapted to open when the die-stock is upward and adapted to close when it is downward located in the handle adjacent to the stock, and a perforation forming a communication between the reservoir in the handle and the die-cavity of the stock, substantially as set forth.

10. In a hand die-stock, a hollow handle closed at the outer end secured in the die-stock, a thimble having a central funnel-shaped depression facing toward the die-stock adjacent to the stock closing the hollow of the handle, and a gravity-valve carried by such thimble, substantially as set forth.

JULIUS ROEMER.

Witnesses:

H. W. HILDEBRANDT,
V. O. PETERS.