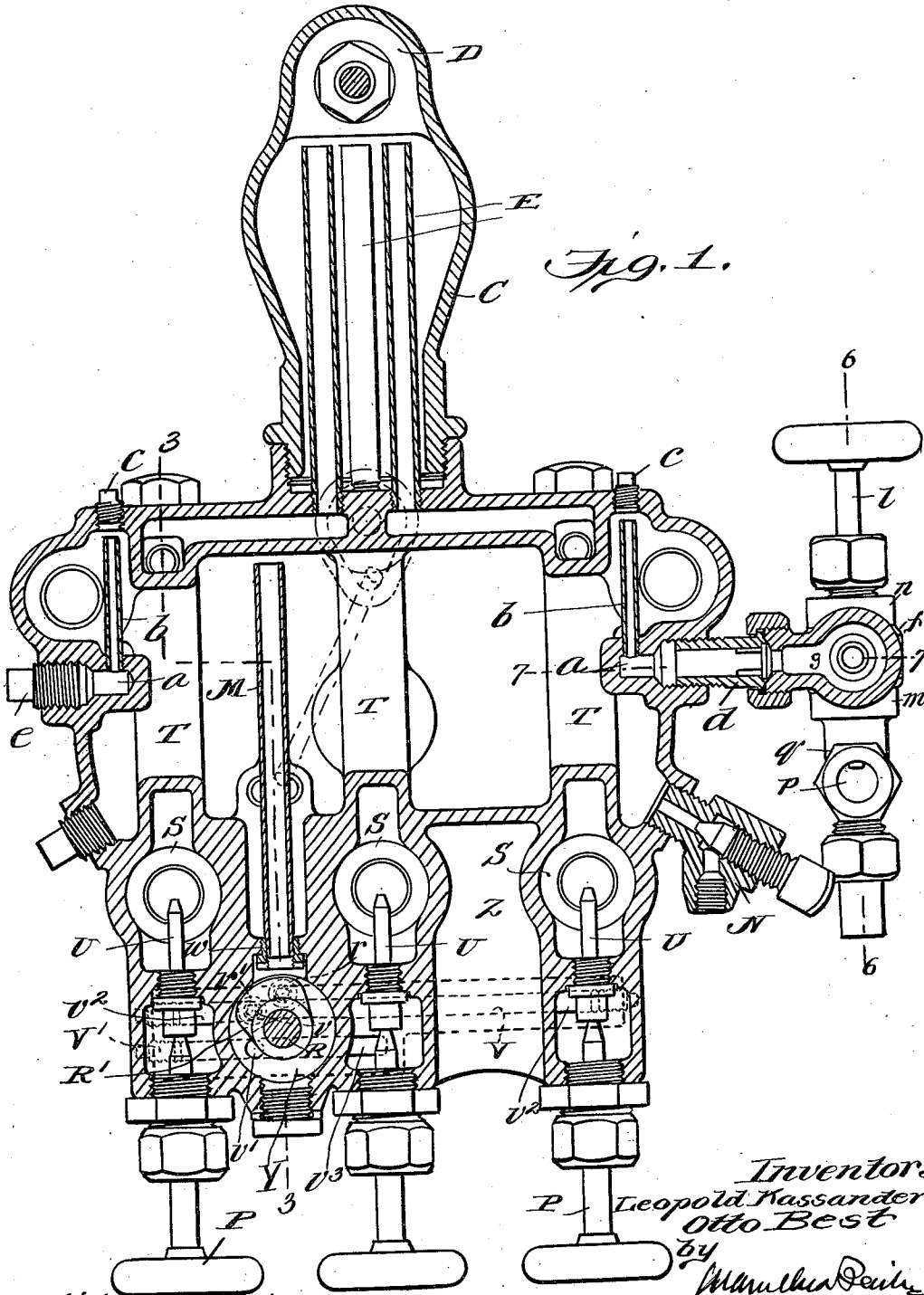


L. KASSANDER & O. BEST.
LUBRICATOR.
APPLICATION FILED SEPT. 13, 1911.

Patented Apr. 9, 1912.
5 SHEETS—SHEET 1.

1,022,741.



Witnesses:
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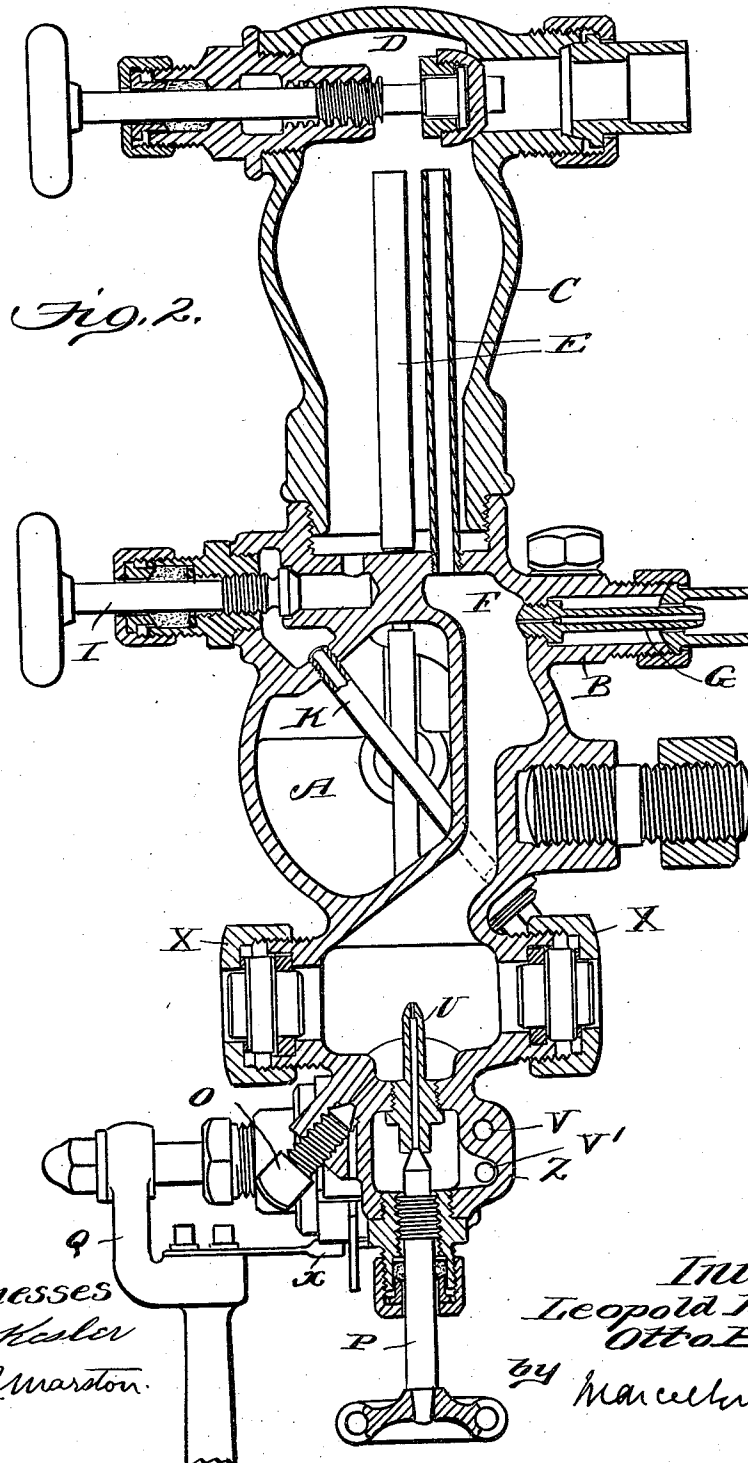
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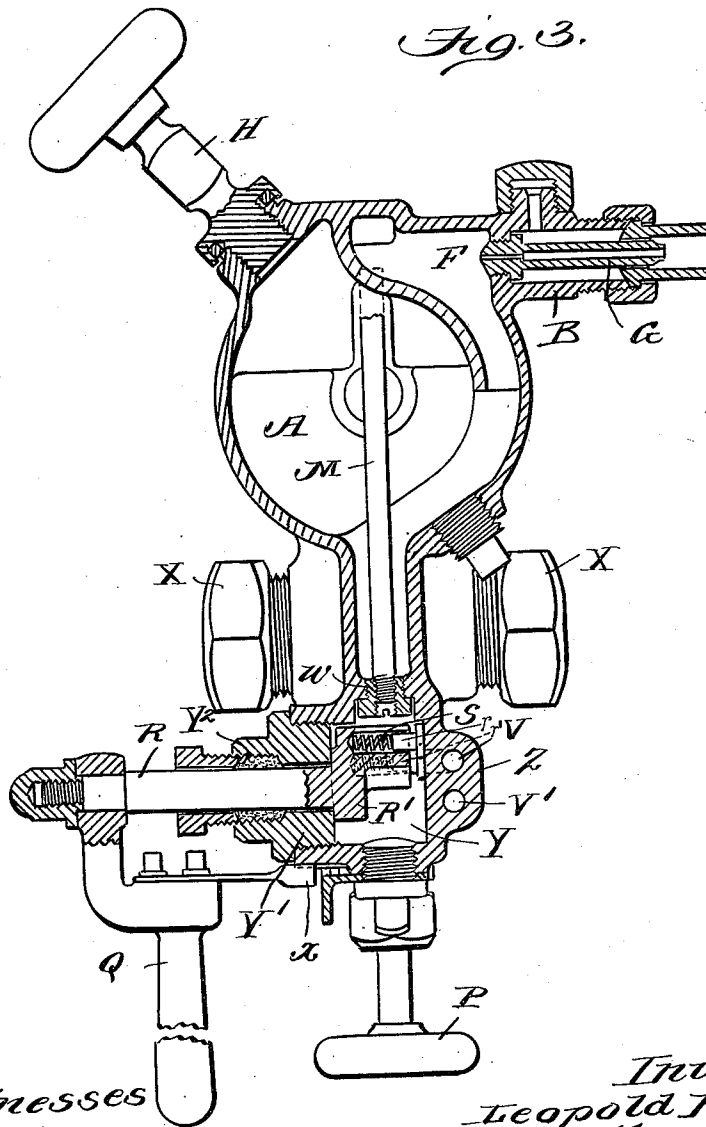
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5 SHEETS-SHEET 3.

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Fig. 3.



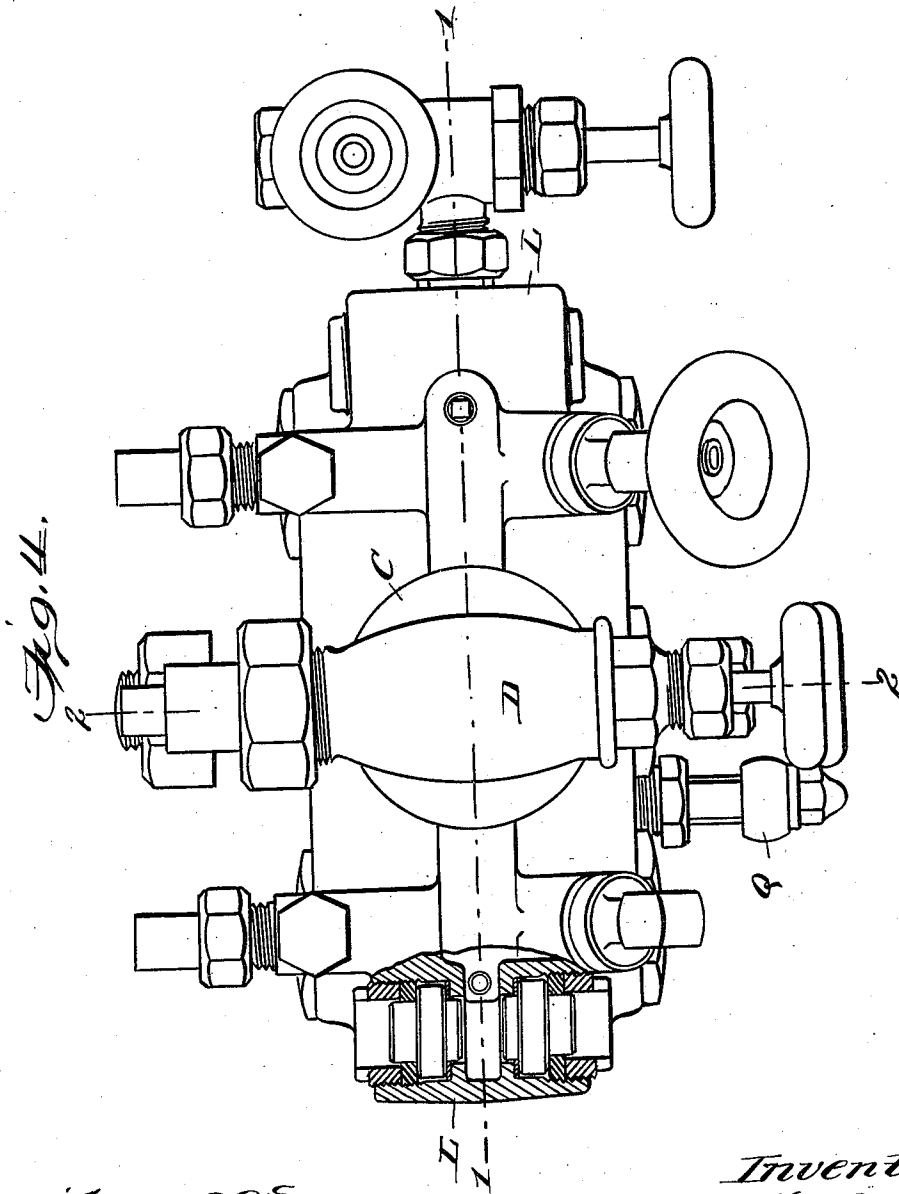
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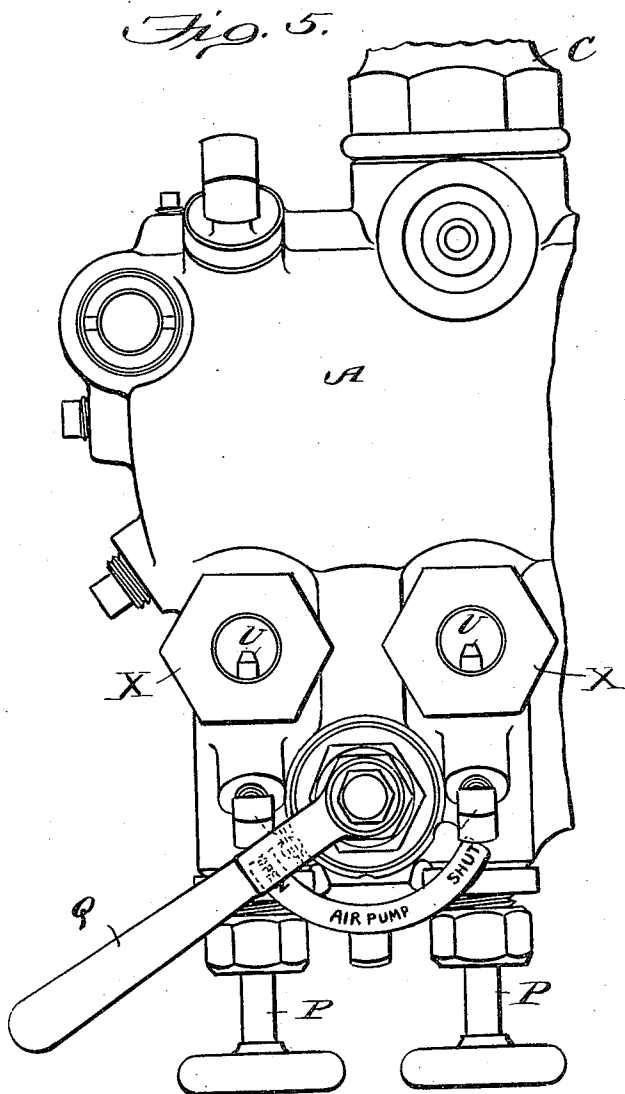
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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LUBRICATOR.

1,022,741:

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed September 13, 1911. Serial No. 649,008.

To all whom it may concern:

Be it known that we, LEOPOLD KASSANDER and OTTO BEST, citizens of the United States, and residing in the city, county, and State of New York, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

Our improvements relate to multiple feed lubricators used in connection with locomotives, and in which the oil passes from a suitable reservoir in visible drops through a body of water into the tallow pipes and thence to the parts to be lubricated; and we have represented them in the drawings, to be hereinafter more particularly referred to, as applied to that type of this class of lubricators in which the sight chambers and oil passages leading thereto are contained in a structure cast integral with, but located below and outside of the oil reservoir, as illustrated in U. S. Patent No. 844,281 of February 12, 1907, wherein is shown a triple sight-feed, condensation-displacement, balanced-pressure lubricator of this kind—each sight feed as usual having its own regulating valve, and two of the feeds leading to the engine cylinders and one of them leading to the air pump, as customary in triple feed lubricators.

The object of our invention is a suitable, effective and economical cut-out, whereby communication between the oil reservoir and all of the oil passages contained in the said structure, cast integral with but located below and outside of the oil reservoir, may be controlled by a single valve arrangement, the same being preferably so constructed and applied that one or all of the oil passages can be opened or shut as desired. This valve arrangement, whereby all of said oil passages are controlled, is located in the casting outside of and below the oil reservoir, and between the sight-feed regulating valves hereinbefore referred to and the reservoir, and is in addition to, and independent of, said regulating valves, which are retained in order that each sight feed may be regulated independently of the others.

We are aware that it is not new in multiple feed lubricators to provide a valve for each feed to regulate the amount or rate of oil discharge from that feed independently of the others, in combination with a single cut-out valve, between said regulating valves and the oil reservoir, for opening and closing

communication between said feeds and the oil reservoir. We are also aware that it is not new in multiple feed attachments, to provide a single valve, in the nature of a three-way cock, whereby one or all of the feeds can be cut out or turned on. We claim neither one of these features, broadly considered.

Our invention resides in the structural details and relative location and combination of parts which form the subject of our invention, and which we will now proceed to describe by reference to, and in connection with, the accompanying drawings forming part of this specification,

In said drawings—Figure 1 is a longitudinal section on line 1—1, Fig. 4, with the cylinder feed attachment partly in elevation. Fig. 2 is a cross section on line 2—2, Fig. 4. Fig. 3 is a cross section on line 3—3, Fig. 1. Fig. 4 is a top view of a lubricator embodying our invention. Fig. 5 is a front elevation of that portion of the elevator wherein the cut-out valve arrangement is located

Like letters of reference indicate like parts in all the figures.

A is the cylindrical oil reservoir placed horizontally and provided with threaded necks B for connecting the oil pipes which lead to the parts to be lubricated. In this instance there are three such necks leading, the two end ones to the engine cylinders, and the intermediate one to the air pump.

C is the condenser with the usual valve and steam supply connections D.

E are the equalizing pipes and F the equalizing steam passages which lead steam behind the "choke-plugs" G; H, filler plug; I, valve controlling the passage of water from condenser to bottom of oil reservoir through tube K; L L, gage glasses (one of them shown in section in Fig. 4,) to indicate contents of oil reservoir, and fronting the same way as the sight feed glasses; M, oil tube; N, drain valve; O, blow out valves for sight feed chambers; P, feed regulating valves; S, sight chambers communicating with outlets B, through channels T cast in reservoir; U, feed nozzles in lower part of sight chambers; X, screw casings in front and back of sight chambers and containing the disk sight feed glasses. From oil tube M lead the passages through which oil is conducted to the sight chambers. The oil passages and sight chambers are con-

tained in a structure which is cast integral with and located below and outside of the oil reservoir.

Thus far there is nothing essentially new in the lubricator or different from the lubricator of Patent No. 844,281, and the reference letters hereinbefore used indicate the same parts in the patent as here, the same being a triple-feed, condensation-displacement, balanced-pressure, locomotive lubricator of known type. Upon a lubricator of this kind is engrafted the cutout arrangement which forms the first part of our improvements, and which we will now proceed to describe.

The casting which contains the sight feed chambers and oil passages thus far referred to, and which is integral with and located below and outside of the oil reservoir, we designate by the reference letter Z. In the casting Z, at some suitable point—in this instance at a point between the air pump sight chamber and the left hand cylinder sight chamber—is formed a chamber Y, which may be conveniently of cylindrical form, its axis being horizontal and crosswise of the length of the casting. The front wall of the chamber is formed by a screw plug Y', which closes the mouth of the chamber, and which carries the movable portion of the cut-out arrangement. The oil tube M communicates with the chamber Y through a vertical channel W, in casting Z, fitted with a plug w, into which the oil tube is screwed as indicated in Figs. 1 and 3.

In a thickened portion of the casting, back of the chamber Y, are formed two horizontal oil channels V, V', which extend lengthwise of the casting, and are arranged the one vertically over and parallel with the other. The upper passage V is the longer passage, extending virtually the length of the casting. It is closed at its ends; communicates with the chamber Y through a hole or port v, formed in the rear wall of said chamber; and near each end it has a port v², through which it communicates with the steam cylinder sight chamber S at that end, opening into the space in said chamber below the feed nozzle U therein. The lower oil passage V' is shorter, extending only from the chamber Y to the intermediate or central air pump sight chamber. It communicates with chamber Y through a hole or port v' in the rear wall of the same, and with the space in the central sight chamber below the feed nozzle therein through a port v³. Thus the vertical and horizontal oil channels, while contained in the casting Z, communicate, not directly with one another as in Patent No. 844,281, but through the intermediary of the chamber Y. This chamber, however, is also contained in the casting, and by locating it therein at the level of the lower and narrower portions of the sight

chambers, we find ample space between adjoining sight chambers to accommodate the chamber Y without any increase in the length of the casting, over that which it has in the existing form of lubricator. By locating it at that level, the horizontal oil channels V, V' are also brought to the same level where they can open conveniently and directly both into the chamber Y and into the spaces in the sight chambers below the feed nozzles U. Nor is the casting thicker from front to rear, save for the slight increase in thickness along the line where the horizontal oil channels V, V' are located.

The plug Y' which closes the front of chamber Y is annular, having through it an axial cylindrical hole for the passage of the cylindrical operating stem R of the cut-out arrangement, and a stuffing box Y² for packing said stem. Suitably secured on the squared outer end of the stem R is an operating handle Q. On the inner end of the stem is a shouldered head R', contained in chamber Y. The shoulder bears against the inner face of the plug Y' which forms the front wall of the chamber. In that face of an offset portion of the shouldered head which confronts the rear wall of chamber Y, are formed two cylindrical horizontal sockets to receive the cylindrical stems of two disk valves r, r', one of which fits in each socket and is pressed outwardly by a spring s, which holds the head of the disk valve with yielding pressure closely against the rear face of the chamber Y, which is dressed off for this purpose, so as to permit the valve disks to move smoothly over the face of the rear wall when the operating stem R is revolved. The two disk valves r, r' are so located that when the cut-out is closed, valve r' will cover lower port v' and valve r will cover upper port v; and the parts are so spaced and proportioned that when the operating handle is turned to move the valve from right to left, the valve r in its travel—and when about midway between “open” and “shut” positions—will, as seen in Fig. 1, close the upper port v which communicates with the upper horizontal oil channel V through which the sight chambers of the cylindrical sight feeds are supplied with oil, but leave open the lower port v' which communicates with the lower oil channel through which the air pump sight feed is supplied. The cut-out is in fact a three-position cut-out, as illustrated by the words “Open,” “Air pump” and “Shut” on the indicator plate shown in Fig. 5. A spring detent device x of any suitable construction is employed to hold the handle in either one of the three positions. When the handle is at “Open” (in which position it is shown in Fig. 5) both ports v, v' will be open; when it is at “Air pump,” the air pump port v' will be open, while the cylinder port v will

be shut, as indicated in Fig. 1; when it is at "Shut," both ports *v*, *v'* will be closed. Under this arrangement it will be noticed that a single cut-out valve closes and opens communication between all the sight feeds and the oil reservoir, thus permitting the feed regulating valves *P* to be used only for the purpose of feed regulation and to remain undisturbed in any position of adjustment.

The three-position cut-out is of advantage, inasmuch as it permits the air pump supply to be opened up without opening up the steam cylinder supply also—which is frequently desirable—as for example when the engine is at rest. If desired we may employ a single long horizontal channel with a port or opening communicating with each one of the three sight feeds, such as the channel *V* illustrated in U. S. Patent #844,281, to which the cut-out valve may be applied in an obvious manner. The three-position cut-out, however, is preferred for the reasons above suggested. Furthermore the heads of the valves *r*, *r'* may be connected, so as to constitute a single flat continuous spring pressed valve plate of dimensions to cover the two ports *v*, *v'* when in "Shut" position. The arrangement illustrated is, however, preferred.

It is desirable that the lubricator should be provided also with a feed for the air cylinder of the air pump of the locomotive, which shall be independent of the usual steam cylinder and air pump feeds, and which may or may not be used in connection with the lubricator as desired. Such an air cylinder attachment is represented at the right hand end of the lubricator in Fig. 1, comprising, as there shown, a body *f* having a bonnet *n* at top, and at bottom a part *m* containing a sight feed chamber closed by glass disks *p* and nuts *q*, for sight purposes. A coupling *d* connects the attachment to a pocket *a* in the side of the lubricator in the top of which is screwed a tube *b*, the upper end of which opens into the oil chamber of the lubricator—the tube being inserted in place through an opening in the top of the lubricator closed by a plug *c*. Parts *a*, *b*, *c*, are present on both sides of the lubricator in Fig. 1, so that the air-cylinder feed attachment can be applied to either side as preferred, the pocket on the unused side being closed by a screw plug *e* as shown on the left of Fig. 1. We do not, however, describe in detail the construction and arrangement of this attachment and its related parts in the lubricator, inasmuch as the same is made the subject of a separate divisional application for patent in our names Serial No. 659,230, filed Nov. 8, 1911. Having described our improvements and

the best way now known to us of carrying the same into practical effect, what we claim herein as new and desire to secure by Letters Patent is as follows:

1. In a multiple sight-feed lubricator, the combination with the oil reservoir and steam-equalizing and oil-pipe connections of a casting integral with, and below and outside of, the oil chamber, sight chambers and vertical and horizontal oil-supply channels therefor contained in said casting, regulating valves, one for each sight-feed chamber, a valve chamber also formed in said casting at the junction of the vertical and horizontal channels therein and located in that portion of the casting in front of the horizontal channels and in the interval between two adjoining sight-feeds, a rotary disk cut-out valve for controlling ports in the vertical rear wall of said valve chamber leading to the horizontal oil chambers, and an operating stem and handle therefor extending through to the front of the casting and supported in bearings therein, the acting face portion of said cut-out valve which controls said ports being movable to and from the rear wall of the valve chamber, and spring-pressed toward and against the same, substantially as and for the purposes hereinbefore set forth.

2. In a multiple sight feed lubricator the combination with the oil reservoir and steam-equalizing and oil-pipe connections, of a casting integral with and located below and outside of the oil chamber: air pump and steam cylinder sight-feed chambers contained in said casting, and regulating valves, one for each chamber; a cut-out valve chamber formed in said casting, and a vertical oil channel leading thereto from the oil pipe; two horizontal oil channels *v* *v'* located in the casting back of the cut-out valve chamber and one above the other, the one communicating with the two steam cylinder sight-feeds, the other with the air pump sight-feed, and each having its own port opening into the cut-out valve chamber; a rotary disk cut-out valve controlling said ports and arranged to open at will either both the steam cylinder and air pump ports, or the air pump port only; and an operating stem and handle for said cut-out valve, extending through to the front of the casting and supported in bearings therein, substantially as and for the purposes hereinbefore set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

LEOPOLD KASSANDER.
OTTO BEST.

Witnesses:

N. W. ANTHONY,
G. E. HANNAH.