(No Model.)

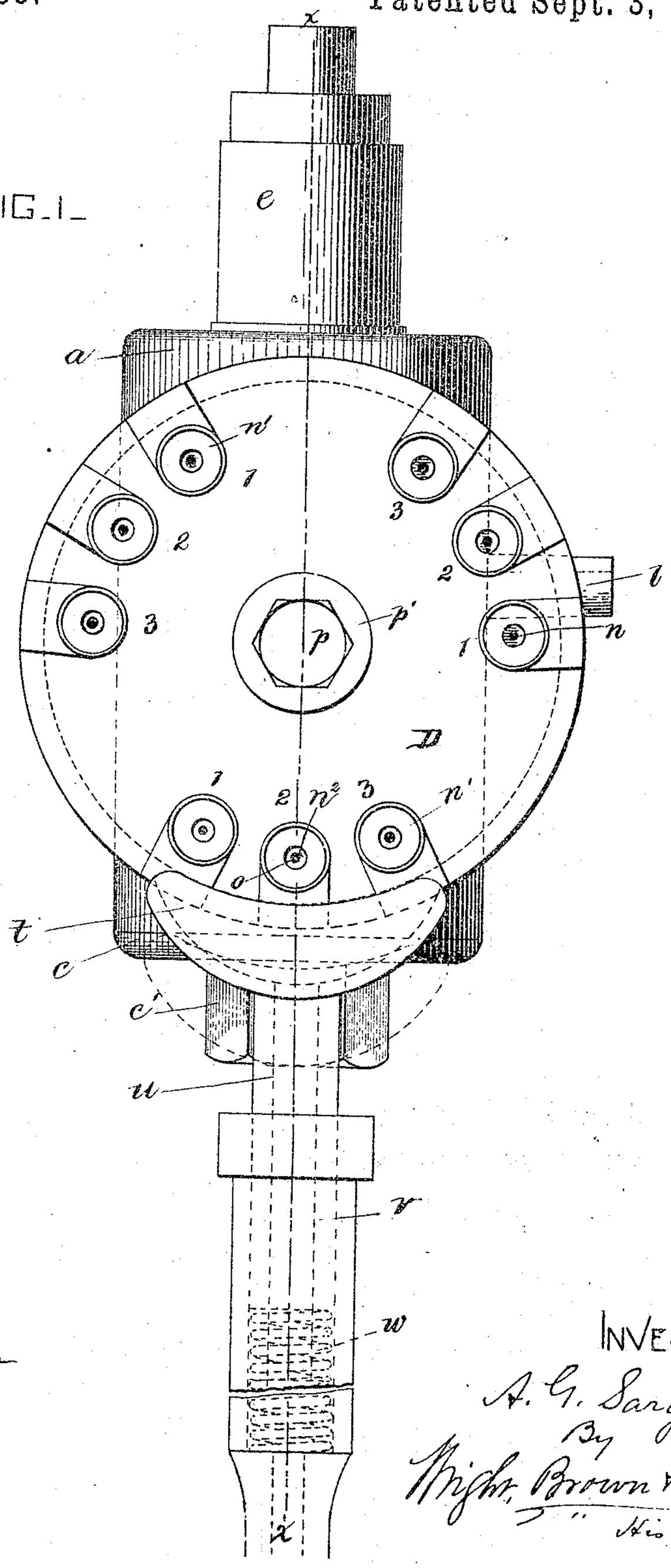
2 Sheets—Sheet 1.

A. G. SARGENT.

AUTOMATIC OIL FEEDER FOR OIL STOVES.

No. 410,453. Patented Sept. 3, 1889.

FIG. 1.



WITNESSES.
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H. L. Ramsay.

INVENTOR
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By
Wright, Brown & Crosby
His attys.

(No Model.)

A. G. SARGENT.

2 Sheets—Sheet 2.

AUTOMATIC OIL FEEDER FOR OIL STOVES.

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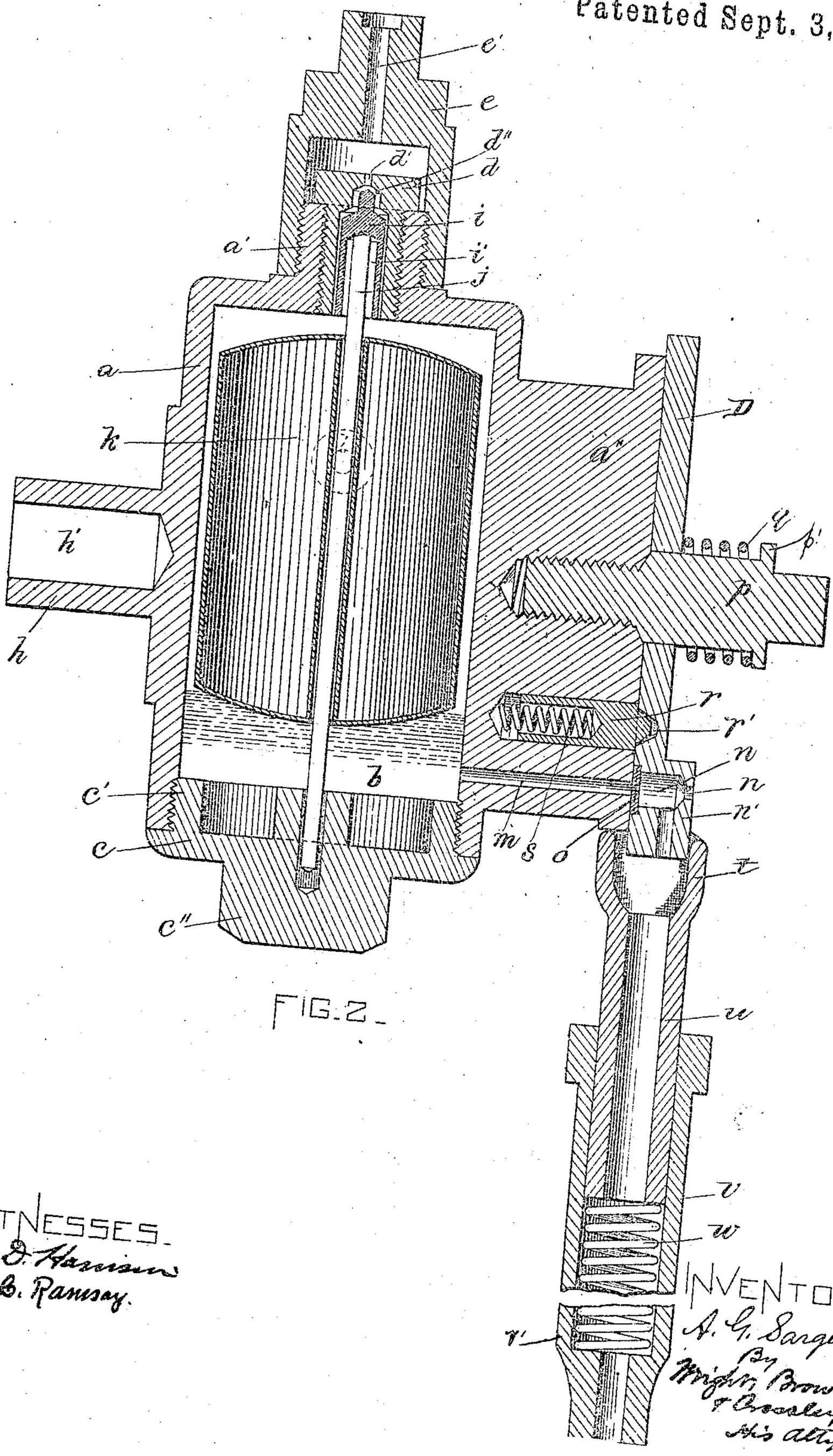

FIG. 2.

WITNESSES.
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His attys.

UNITED STATES PATENT OFFICE.

ARTHUR G. SARGENT, OF TILTON, ASSIGNOR OF ONE-HALF TO THE LACONIA CAR COMPANY, OF LACONIA, NEW HAMPSHIRE.

AUTOMATIC OIL-FEEDER FOR OIL-STOVES.

SPECIFICATION forming part of Letters Patent No. 410,453, dated September 3, 1889.

Application filed March 14, 1889. Serial No. 303,224. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR G. SARGENT, of Tilton, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Automatic Oil-Feeders for Oil-Stoves, of which the following is a specification.

This invention relates to automatic oil-feeders such as are used for feeding oil to oil stoves or heaters in freight-cars; and it has for its object the improvements in construction which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of my improved feeder with connecting-pipes; Fig. 2, a section of the same on line $x\,x$ of Fig. 1.

The same letters of reference indicate the same parts in all the drawings.

In the drawings, a represents a casting having within it the cavity or oil-chamber b. The lower end of the casting is internally screw-threaded to engage with the externally-screw-threaded flange c' on the cap c. The said cap has a hexagonal head, to which a wrench is applied in applying or removing the cap. The upper end of the casting has a flange or neck a', which is externally and internally-screw-threaded, said upper end being closed by the inner cap or plug d, which is threaded to engage with the internal threads on the neck a'. The plug d is hollow and has a small orifice or oil-passage in its head, through which the oil flows into the chamber b.

e represents an outer cap, which is internally screw-threaded to engage with the external threads on the neck a'. In the head of said outer cap is a passage e', through which the oil from the storage-reservoir flows to the space between the caps d and e. The upper end of the outer cap e is countersunk, so that a disk f may be inserted, having a central hole for the passage of oil. By providing disks with holes of different sizes I can regulate the rate of inflow of oil. The oil passes out of chamber b to the stove, as will be hereinafter described, through the passage m in the lower portion of the casting.

To regulate the entrance of oil through the passage d', I provide the valve i. Said valve has a socket i', in which is loosely fitted a rod j, which is secured to a float k within the oil-chamber b. When the oil rises in the chamber, the float is raised and presses the valve i by means of the rod j against its seat d'' in the plug d, thus closing the opening in the plug and preventing entrance of oil into the chamber b. As the oil is used and the level of the oil in the chamber b lowered, the float and valve fall and the passage d' is again opened. To guide the float, the rod j is extended down into the recess c'' of the lower cap c. It is desirable that the float may be regulated so as to keep the oil at any desired height in the chamber b. To this end the rod j is located in a passage through the float k, and is secured therein by solder. When it is desired to change the position of the float on the wire, the solder is melted and the wire drawn to any new position, where it will be held by the solder when cool.

An overflow-pipe l is provided in one side of the casting a to permit the escape of oil from the chamber b in case any derangement of the valve or float should permit the accumulation of too much oil in said chamber, it being desirable to keep the quantity of oil uniform. An increased accumulation in the chamber creates a head or pressure which causes the oil to flow too rapidly to the stove and causes a dangerous increase of heat. This feature is an important one, as, if the head of oil is at any time considerably increased, the flow will be necessarily increased in any form of feeder, and the increased supply of oil afforded the heater will cause the same to generate an amount of heat which may set the wood-work or contents of the car on fire. The overflow-opening also admits the atmospheric pressure to the chamber b at all times; otherwise a partial vacuum would be formed as the oil falls and the oil would not flow from the chamber freely. On the side of the casting is a circular boss a'', having a stud p, on which is journaled a rotary disk or dial D, by means of which the outflow of oil is regulated. On the edge of the dial are a series of protuberances n', in which are passages n, which are arranged to coincide with the outlet m of the oil-chamber. By the rotation of the dial any one of these

passages *n* may be brought into connection with the outlet *m*, so that the oil may flow therefrom through the said passage *n*, which extends outwardly through the margin of the dial, and therefore allows the oil to drop from said margin into a collector *t*, hereinafter described. The inner side of the dial is countersunk around the passages *n* for the reception of disks *o*, which are removably applied to the dial, each disk having an opening for the passage of oil. The size of the opening is varied in the different disks, so that by bringing different passages *n* into connection with the outlet *m* the flow of oil therefrom may be increased or diminished. The outlet-passages *n* in the dial may be of any number practicable, and arranged or grouped in any manner; but I prefer to provide nine passages arranged in groups of three. The openings *o* in the disks of the same group of passages are of the same size, but they are of different sizes in the different groups. Thus there are three sizes of openings and three of each size, thereby providing for proper regulation of the outflow of oil, and in case any opening becomes clogged affording two other openings of the same size to which recourse may be had. Since the disks are removably inserted, I may at any time change the disks of any or all the groups of passages for disks with other-sized openings in order that an outflow of any desired rate may be obtained. I number the orifices, as shown, according to the relative sizes of disks used therein. Orifices *n''* are formed in the outer side of the protuberances *n'* in forming the openings or passages *n*. Said openings *n''* admit the atmospheric pressure to the passages *n*, and thus allow the oil to drop freely therefrom. The stud *p* is screwed into the boss *a''* and forms a bearing on which the dial D may be rotated. The head of the stud *p* has a flange *p'*, between which and the dial is placed a spring *q*, whose office is to press the dial closely against the face of the boss. The faces of both boss and dial are ground so that the connection is close and no oil is allowed to escape between them. To hold the dial in position with any one of the passages *n* in connection with the outlet *m*, I provide above each passage *n* a recess *r'*, into which a latch or bolt *r* is pushed by a spring whenever the recess is brought opposite the bolt by the rotation of the dial, said bolt being located in a cavity or socket in the boss *a''*. The bolt and sockets are so formed that when the dial is rotated by hand the bolt will yield, the force of its spring being sufficient only to prevent the accidental rotation of the dial. I provide a ring of metal on the outside of the dial, enabling the same to be more easily grasped by the hand, and also making it easier to give a smooth finish to the edge.

A uniform head of oil being assured by the automatic valve *i*, which regulates the inflow, or in case of derangement of the valve by the overflow-pipe *l*, and provision made whereby any size of opening for the outflow of oil may be quickly adjusted, my improved feeder secures a sure, exact, perfect regulation of the flow of oil. The cup *t*, into which the oil drops from the passage *n*, is connected with a pipe *u*, which is a section of the conduit through which the oil passes to the stove or heater. The pipe *u* is vertically movable in the larger pipe *v*, into which it fits. The pipe *v* is countersunk or enlarged above, so as to form a shoulder *v'* within, between which and the lower end of the movable pipe *u* is placed the spring *w*, which normally holds the pipe *u* and cup *t* supported thereon against the dial; but by pressure of the hand on the cup it may be depressed so as to show whether the oil is properly feeding or not, the cup being returned to position by the spring when released. On the side of the casting opposite the boss *a''* is a smaller boss *h*, which has a socket *h'*, which may be internally screw-threaded. This boss is formed to receive a stud by which the feeder is supported. This forms a convenient and sure support; but I may use any other which is suitable.

I claim—

1. In an automatic oil-feeder, the combination of an oil-chamber having inlet and outlet passages, a valve for said inlet-passage, a float within the chamber controlling said valve, and a movable plate having a plurality of outlet-passages adapted to coincide interchangeably with the outlet-passage, as set forth.

2. In an automatic oil-feeder, the combination of an oil-chamber having inlet and outlet passages, an automatic valve to control the admission of oil to said chamber, a rotary plate or dial properly connected to said chamber and provided with a plurality of outlet-passages, and a latch or detent, whereby said plate may be held with either of its passages in register with the outlet-passage of the chamber, as set forth.

3. In an automatic oil-feeder, the combination of an oil-chamber having inlet and outlet passages, an automatic valve controlling the admission of oil to said chamber, a movable plate having a plurality of outlet-passages adapted to coincide interchangeably with the outlet-passage of the oil-chamber, and disks removably inserted in the outlet-passages of said plate and provided with apertures of different sizes, said apertures regulating the outflow of oil from the chamber, as set forth.

4. The oil-chamber having the inlet and outlet passages, the float-supported inlet-controlling valve, and the pipe or conduit arranged above the outlet-passage, whereby air is admitted to the chamber and an undue accumulation of oil therein is prevented, as set forth.

5. The oil-chamber having the oil-inlet, the float-supported valve, and the boss or projection in which is formed the oil-outlet, combined with the plate or dial pivotally con-

nected to said boss and having a plurality of outlet-passages adapted to register interchangeably with the outlet-passage of the chamber, and a series of notches corresponding in number and arrangement with said outlet-passages, and a spring-pressed bolt or latch in said boss adapted to engage either of said orifices, as set forth.

6. The oil-chamber having the oil-inlet, the float-supported valve, and the boss or projection in which is formed the oil-outlet, combined with the plate or dial pivotally connected to said boss and having a plurality of outlet-passages adapted to register interchangeably with the outlet-passage of the chamber, each of said passages having a removable apertured disk inserted in a countersunk seat in the inner side of said plate, and a spring whereby said plate is pressed against said boss, as set forth.

7. The combination, with the oil-chamber having the inlet and outlet passages and the automatic inlet-controlling valve, of the cup located on a spring-supported tube or conduit, forming a part of the conduit that conducts the oil from the chamber to the lamp, said cup being adapted to be depressed to show the feeding of the oil, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of March, A. D. 1889.

ARTHUR G. SARGENT.

Witnesses:
STEPHEN S. JEWETT,
SUMNER E. BLACKSTONE.