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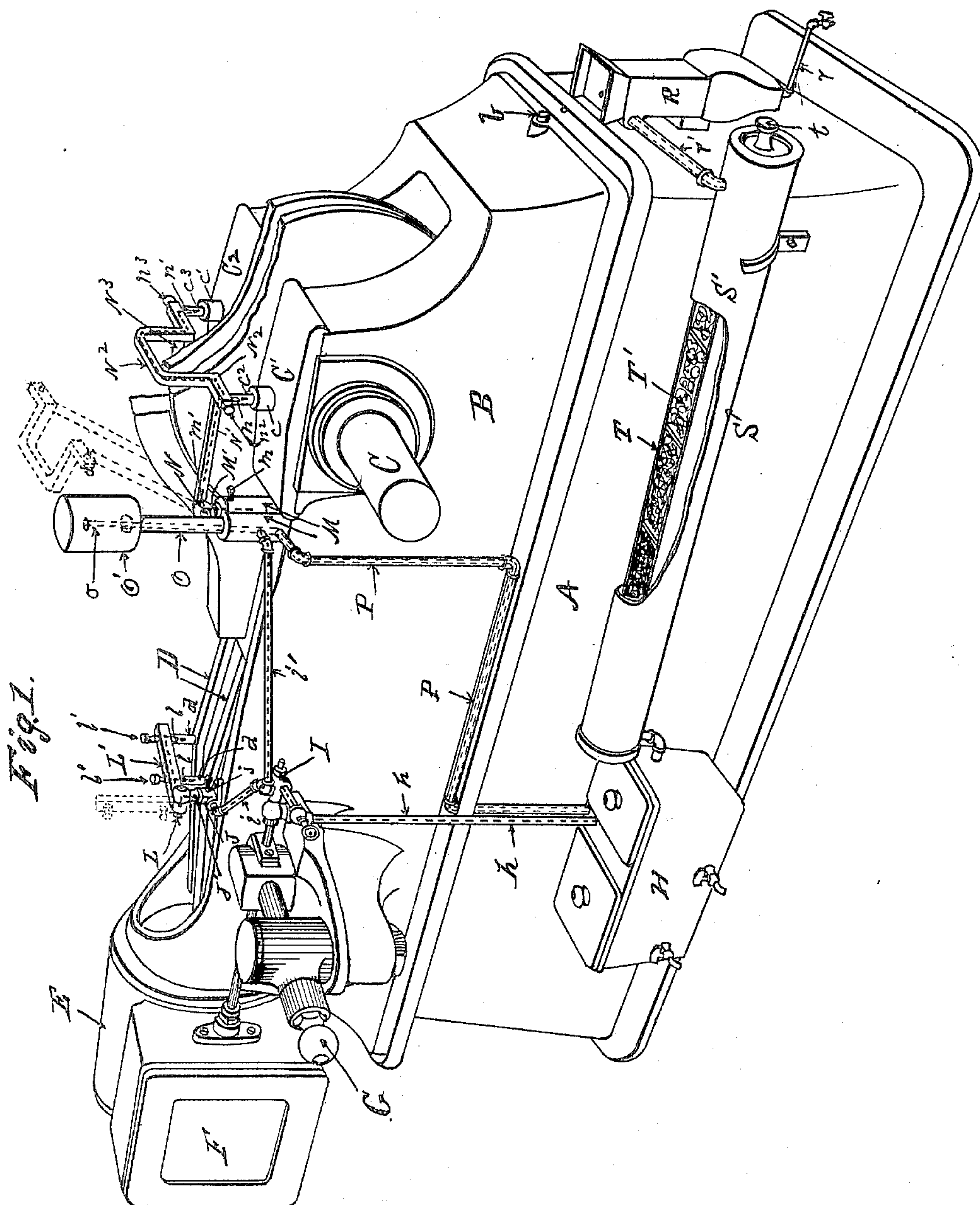
Patented Jan. 2, 1900.

LE GRAND SKINNER.
AUTOMATIC OILER FOR STEAM ENGINES.

(Application filed Nov. 29, 1897. Renewed May 26, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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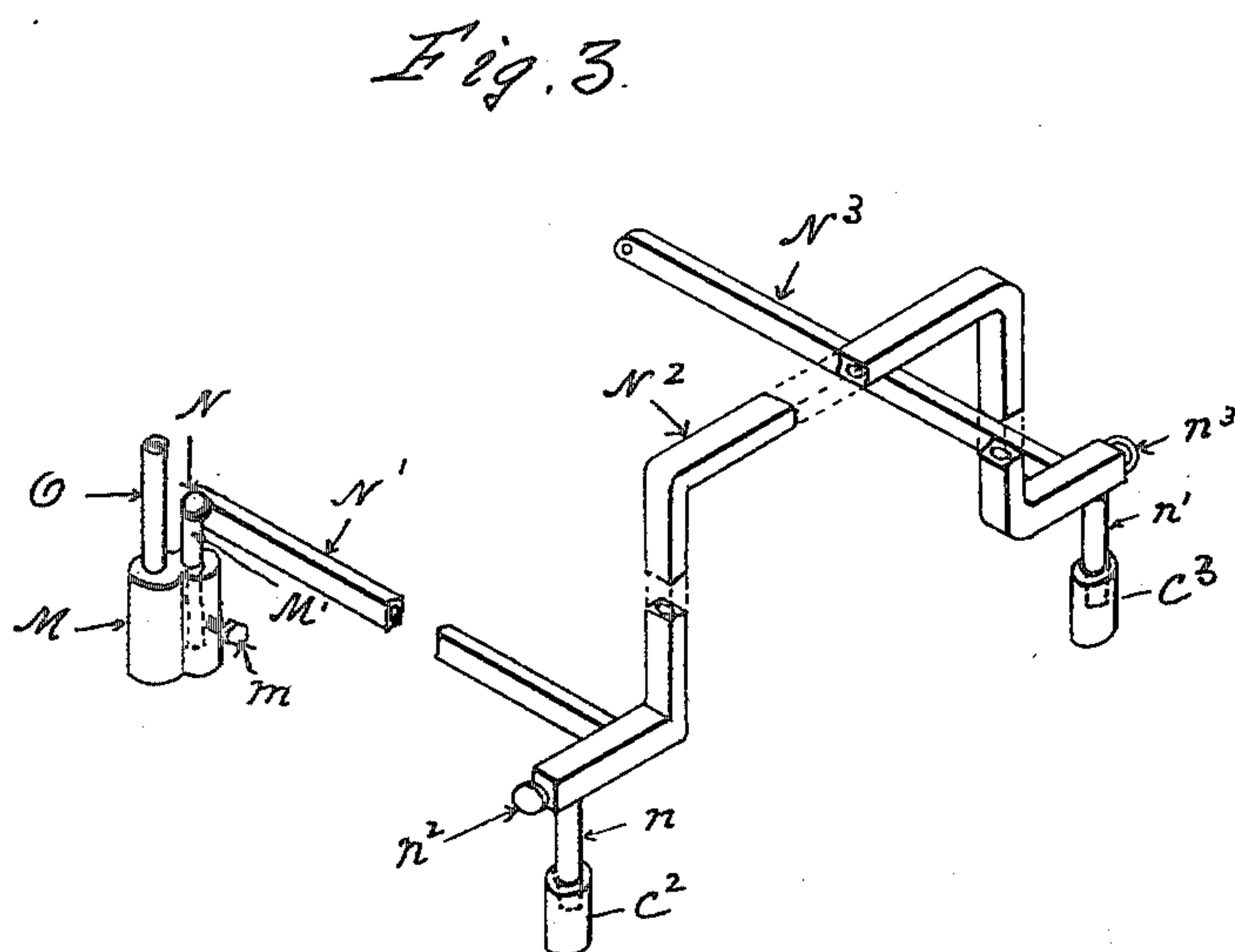
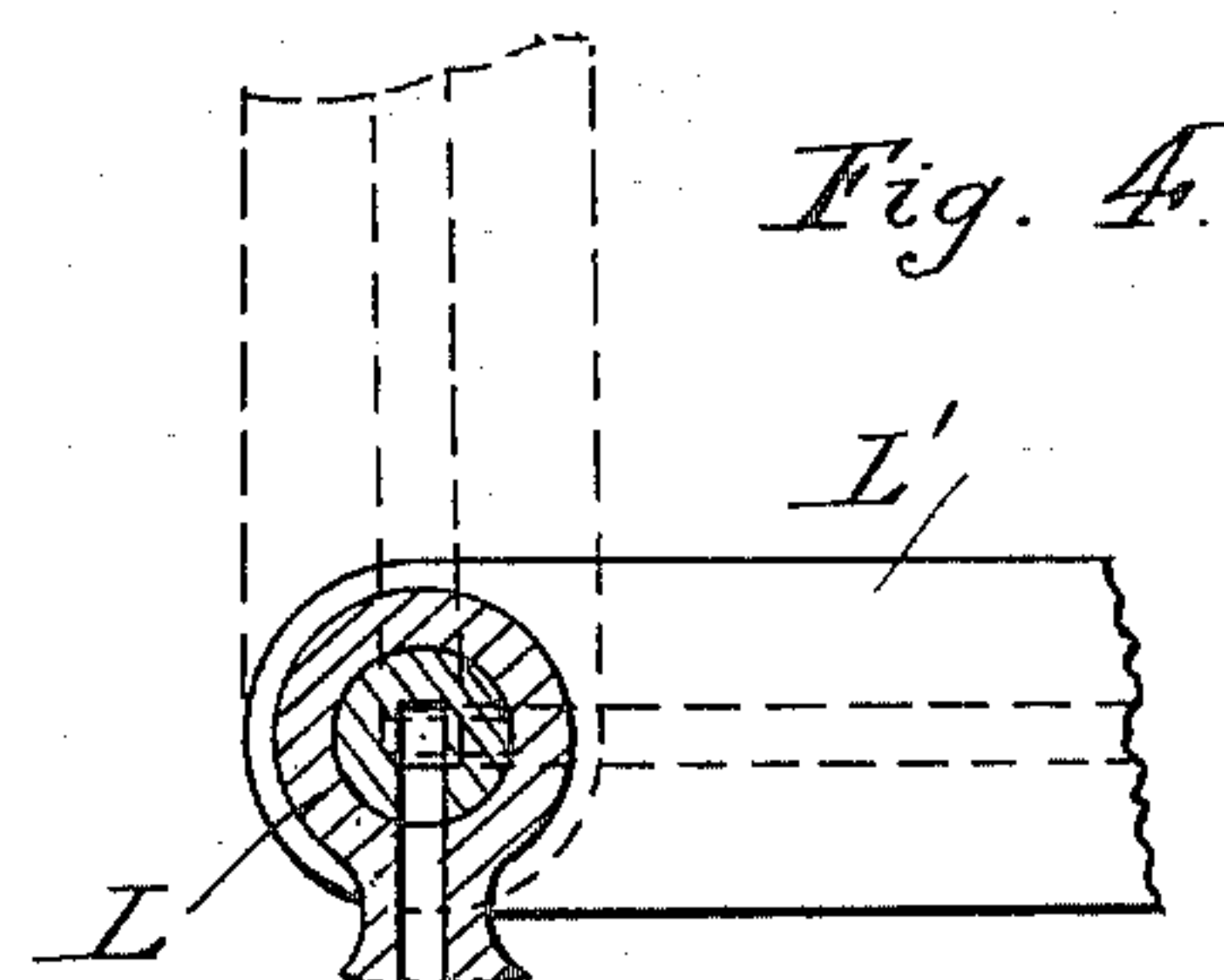
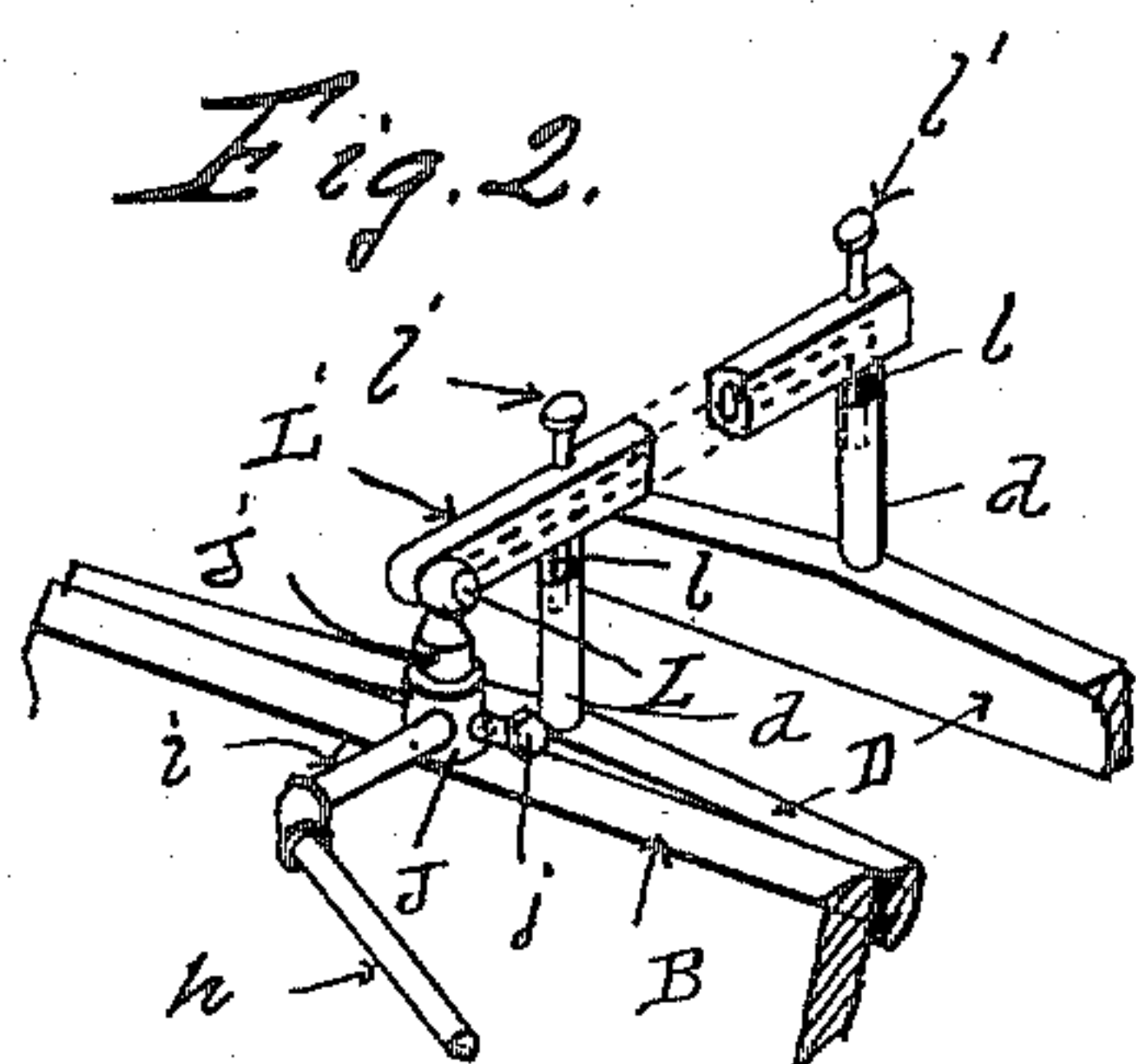
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UNITED STATES PATENT OFFICE.

LE GRAND SKINNER, OF ERIE, PENNSYLVANIA.

AUTOMATIC OILER FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 640,422, dated January 2, 1900.

Application filed November 29, 1897. Renewed May 26, 1899. Serial No. 718,422. (No model.)

To all whom it may concern:

Be it known that I, LE GRAND SKINNER, a citizen of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Oiling Mechanism for Steam-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

This invention relates to improvements in automatic oiling mechanism for steam-engines and comprises, substantially, a pump for pumping oil to the several bearings, pipes for conveying the oil from the pump to standards on the engine-frame adjacent to the bearings, and pipes pivoted in said standards for conveying the oil therefrom to and dropping it into sight-glasses over the bearings, which pipes are so pivoted in the standards that they are adapted to be raised up out of the way, which operation also cuts off the flow of oil therethrough, together with an oil-separator and a filter for purifying the oil which has passed through the bearings and conveying it back into the tank to be again pumped up. These features of my invention will be hereinafter fully described and are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a steam-engine embodying my invention. Fig. 2 is a perspective view of the guide-oiling portion of my device. Fig. 3 is a perspective view of the shaft-bearing-oiling portion of my device. Fig. 4 is a cross-section through the plug of one of the hollow plug-valves, drawn to a larger scale, and showing in dotted lines the position of the parts when the oil is cut off.

In the drawings, A is an engine-bed, B the frame of an engine supported thereby, C the crank-shaft, D the guides, E the cylinder, and F the steam-chest, and G the valve-operating gear thereof, all of which are of the usual construction.

On the side of the engine-bed I secure a tank H, in which a supply of oil is stored. From this tank a pipe *h* leads to a pump I, operated by the valve mechanism G, and from

the outlet of this pump there are two pipes *i* and *i'*, one of which, the pipe *i*, leads to a hollow standard J on the side of the engine-frame B, adjacent to the guides D thereon. In the top of this standard J there is a hollow nipple J', secured in said standard J by means of a set-screw *j*. On the upper end of the nipple J' there is a head adapted to receive a hollow plug-valve L, which has a hollow lateral arm L' thereon, which in its normal position extends across and over both of the engine-guides D, so that the oil will flow through the pipe *i*, the standard J, the nipple J' therein, the plug-valve L, and the arm L'. In each of the guides D there is secured a sight-glass *d*, and on the arm L' are nipples *l*, which extend into the tops of the sight-glasses *d*. Over each nipple *l* in the arm L' there is a regulating-valve *l'* for regulating the flow of oil from the nipples *l* into the sight-glasses *d*, as illustrated in Fig. 2. The arm L' when raised up, as illustrated by dotted lines, operates to close the plug-valve L and cut off the flow of oil through the arm L', and by reversing the set-screw *j* the nipple J' and the valve L and arm L' thereon can be quickly removed when it is necessary to adjust the guides or otherwise repair the engine. The other pipe *i'* leads to a hollow standard M, secured to the top of the engine-frame, adjacent to one of the shaft-bearings C' thereof. In one portion of this standard M there is an upwardly-extending pipe O, upon the top of which there is an overflow-tank O', from which an overflow-pipe *o* passes down into the standard M and connects with a waste-pipe P, leading back to the supply-tank H. In one side of the top of the hollow standard M there is a hollow nipple M', secured by means of a set-screw *m*, and in the top *m'* of the hollow nipple M' there is a valve-seat containing a hollow plug-valve N, and to one end of this valve there is secured a hollow arm N', which extends to and connects with a hollow yoke N², the ends of which are directly over the oil-inlets *c c'* of the shaft-bearings C' and C² of the engine. In the top of these oil-inlets *c* and *c'* there are sight-glasses *c²* and *c³* secured, and in the hollow yoke N² there are nipples *n* and *n'* directly over the sight-glasses *c²* and *c³*, and in the ends of the yoke there are valves *n²* and *n³* for admitting the flow of oil from the

nipples $n n'$ into the sight-glasses c^2 and c^3 . On the opposite side of the yoke N^2 there is a solid arm N^3 , which extends back to and is pivoted in a bearing on the engine-frame (not shown) corresponding in position with the bearing M, as illustrated in Fig. 3, so that the yoke N^2 can be raised up, as shown in the dotted lines, out of the way when desired, which operation closes the plug-valve N and cuts off the flow of oil through the hollow arm N' and the yoke N^2 while it is so raised.

I have not illustrated or described the construction of the hollow plug-valves L and N in detail, as there is nothing novel therein, a well-known type of hollow plug-valve being utilized herein.

On the rear of the engine-bed A there is an oil-and-water separator R, into which the waste oil and water from the guides and bearings flow from the outlet b at the rear end of the engine-frame B, and from the separator the water flows away through a pipe r , while the oil therefrom flows through a pipe r' into the end of an inclined filter S, secured to the side of the engine-bed A and extending to and emptying into the supply-tank H. This filter is made, preferably, of a pipe S' , inside of which there is a trough T, filled with waste T' or other suitable filtering material. On the end of this trough T there is a knob t , by means whereof the trough T, with the filtering material T' , can be withdrawn from the pipe S' and refilled with fresh filtering material when desired.

It will be observed that by means of this construction the arm L' and the arm N' and yoke N^2 are so pivoted to the plug-valves L and N that they can be raised up out of the way at any time when access to the guides or cross-head or to the crank-pin and shaft-bearings is desired, and when desired they can be entirely detached from the engine to facilitate repairs to the engine or for other purposes by loosening the set-screws j and m , when the hollow nipples J' and M' can be withdrawn from the standards J and M.

In operation oil is continuously pumped by means of the pump I from the tank H through the pipes i and i' directly to the hollow standards J and M, the oil passing therefrom into the hollow nipples J' and M' and up through the plug-valves L and N into the hollow bar L' and the hollow arm N' and yoke N^2 to the guides D and the shaft-bearings $C' C^2$, and after being used on the guides D and in the bearings $C' C^2$ it drains down into the bottom of the engine-bed B, where it serves to lubricate the crank-pin at each revolution thereof, and finally passes out through the

outlet b at the rear of the engine-bed and down into the separator R, where the oil and any water which may have become mixed therewith are separated, the water passing off through the pipe r and the oil through the pipe r' , which flows therethrough into the filter S, where it is relieved from dirt and other impurities, and finally passes therefrom into the tank H to be again pumped up for use, any surplus oil being pumped up meanwhile passing into the overflow-tank O' and down through the pipes o and P back to the tank. It will thus be observed that this apparatus feeds oil to the several engine-bearings, and the oil after performing the function desired is automatically separated from water and other extraneous substances and returned to the tank to be again used.

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

1. In an automatic oiling mechanism for a steam-engine, the combination of a hollow standard, on the engine-frame adjacent to the guides, through which a supply of oil is adapted to pass, a hollow plug-valve mounted in said standard, a hollow arm secured to said plug-valve and adapted to extend over the guides when in a horizontal position, which valve operates as a hinge upon which said arm can be swung up and down over the guides and nipples and controlling-valves therefor, in said arm for conveying oil therefrom to the guides when the arm is in a horizontal position, substantially as and for the purpose set forth.

2. In an automatic oiling mechanism for a steam-engine, the combination of a hollow standard on the engine-frame adjacent to one of the main shaft-bearings, through which a supply of oil is adapted to pass, a hollow plug-valve mounted in said standard, a hollow arm secured to said plug-valve and adapted to extend toward the adjacent shaft-bearing, which valve operates as a hinge upon which said arm can be swung up and down, a hollow yoke secured to said arm and adapted to extend over the crank to the shaft-bearings on both sides of the engine-frame, and nipples and controlling-valves therefor in said yoke for conveying oil therefrom to the shaft-bearings when the arm and yoke are down, substantially as and for the purpose set forth.

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

LE GRAND SKINNER.

Witnesses:

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H. J. CURTZE.