

(No Model.)

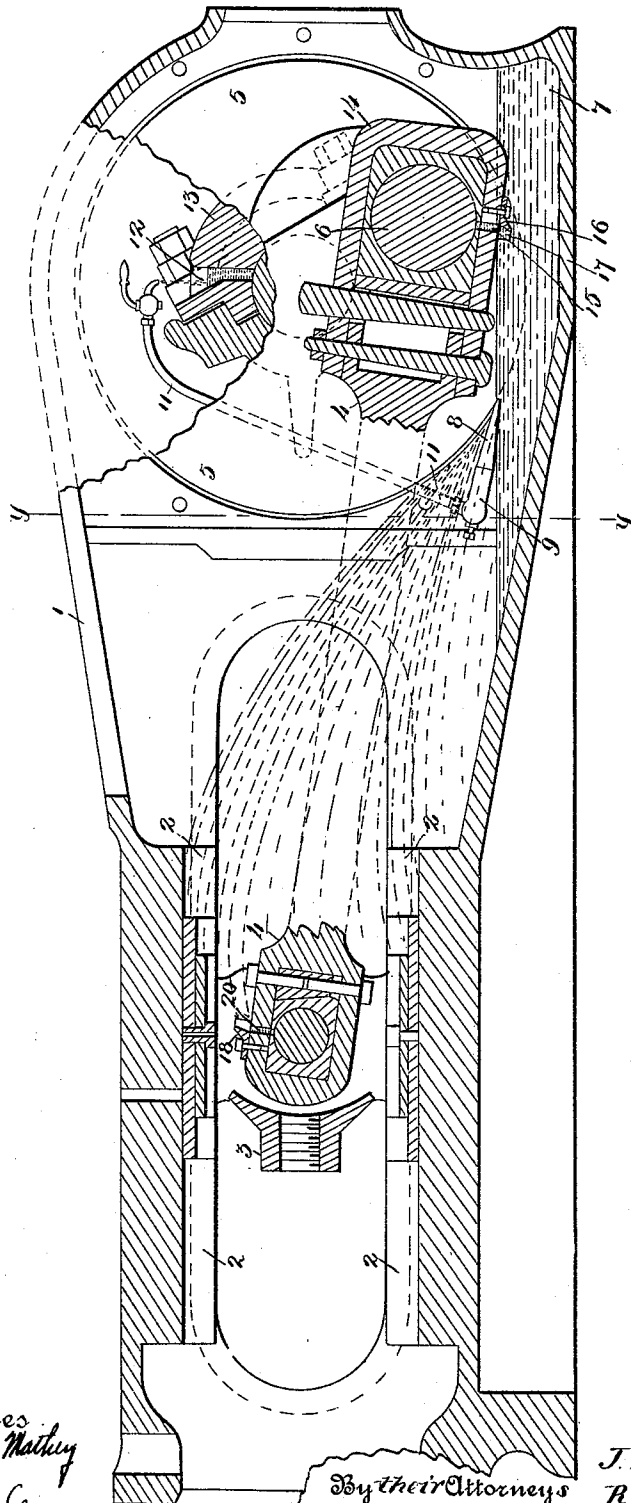
2 Sheets—Sheet 1.

J. F. CHUSE & R. HEAP.
LUBRICATING APPARATUS FOR ENGINES.

No. 543,645.

Patented July 30, 1895.

Fig 1.



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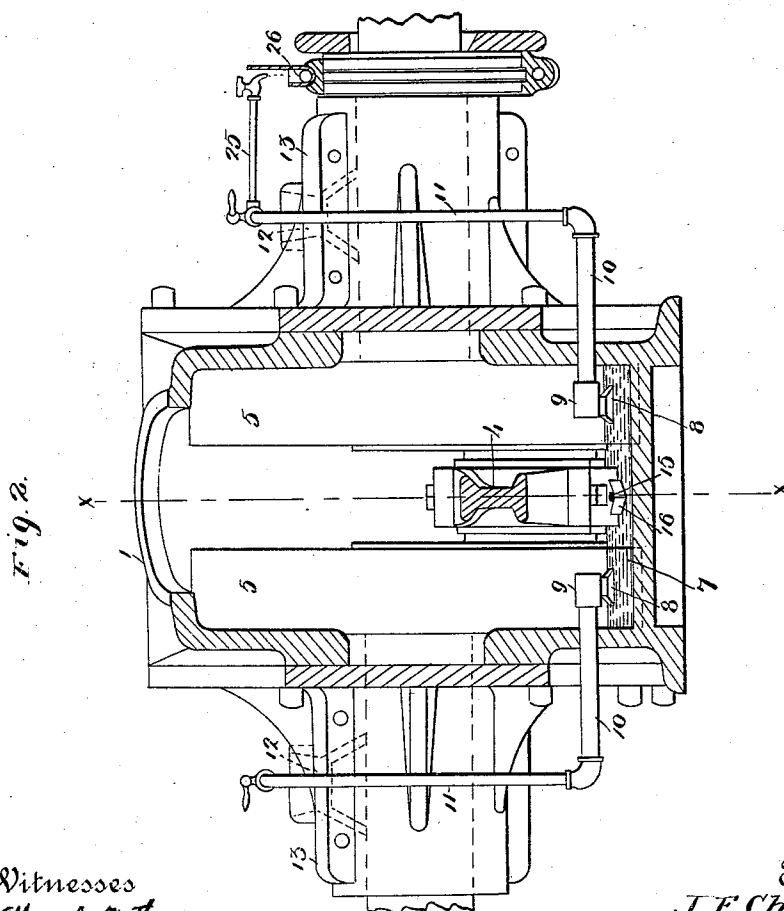
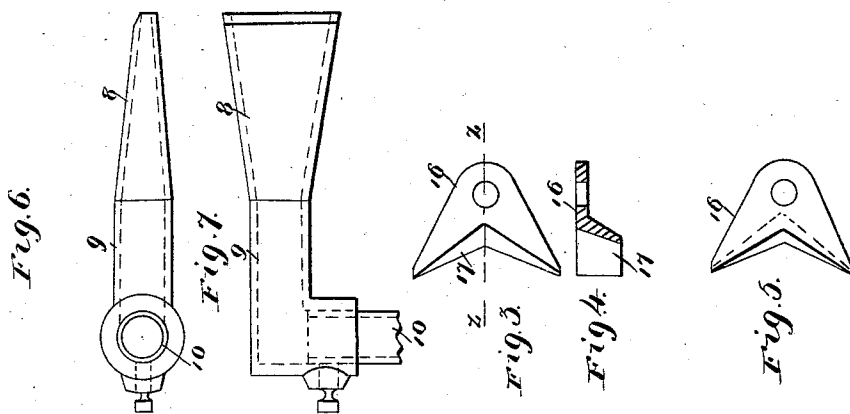
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2 Sheets—Sheet 2.

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LUBRICATING APPARATUS FOR ENGINES.

No. 543,645.

Patented July 30, 1895.



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UNITED STATES PATENT OFFICE.

JOSEPH F. CHUSE AND RICHARD HEAP, OF MATTOON, ILLINOIS.

LUBRICATING APPARATUS FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 543,645, dated July 30, 1895.

Application filed April 11, 1895. Serial No. 545,289. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH F. CHUSE and RICHARD HEAP, citizens of the United States, residing at Mattoon, in the county of Coles and State of Illinois, have invented certain new and useful Improvements in Lubricating Apparatus for Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in lubricating devices for engines; and it consists in the novel arrangement and combination of parts more fully set forth in the specification, and pointed out in the claims.

In the drawings, Figure 1 is a middle vertical longitudinal section on the line xx of Fig. 2, with parts broken away. Fig. 2 is a transverse section on the line yy of Fig. 1. Fig. 3 is a top plan view of one of the oil arresters or scoops, to be hereinafter specifically referred to. Fig. 4 is a section on line zz of Fig. 3. Fig. 5 is a bottom plan view. Fig. 6 is a side elevation of the funnel-shaped collector placed adjacent to the revolving crank-disks, and Fig. 7 is a top plan view of the same.

The object of our invention is to construct a lubricating device for engine-shafts, cross-heads, and the like, which will combine simplicity with a maximum amount of efficiency, be positive in its action under all conditions of speeds at which the engine may travel, and will positively direct the lubricating material to the precise points where its presence is needed. With this end in view we have constructed a lubricating device which in detail may be described as follows:

Referring to the drawings, 1 represents a hollow or covered engine-frame, the narrow extension of which is provided with the guides 2 for the reception and co-operation of the cross-head 3. The cross-head is connected by the connecting-rod 4 to the crank-disks 5, of which there are two in number, the crank-pin 6 connecting the disks with the opposite end of the connecting-rod. At the bottom of the engine-frame is a basin 7 for the reception of a suitable quantity of oil or lubricant sufficient to partially submerge the lower portion of the crank-disks or rather the lower edge thereof. Along the periphery of each crank-disk and near the surface of the layer of oil

contained in the basin, is adapted to rest the open expanded end of a diverging or funnel-shaped oil-collector 8, the said collector having an extension 9, which communicates with a horizontal pipe 10, the latter in turn communicating with a vertical pipe or conduit 11, which leads to the oil-receptacle 12 of the main shaft-bearings 13. By this arrangement, during the revolution of the crank-disks, the centrifugal force, during the rotation of the crank-disks, will carry or force the oil or other lubricant into the diverging collectors 8, whose upper edge of the open end is approximately disposed parallel to the axis of rotation and the opening of the collector being approximately in a line tangent to the periphery of the disks. From the collectors the oil is carried through the pipes 10 and 11 into the oil-receptacles 12. The object in making the collectors diverging, as here shown, is to enable the same to gather the oil conveyed to them by the revolving crank-disks and force the said oil to the receptacles or cups 12.

In the strap 14, which secures one end of the connecting-rod to the crank-pin, is an opening 15, along one edge of which is secured a cast-iron or other metallic scoop 16, said scoop consisting of a V-shaped plate having inclined walls 17 along the edges of the V and meeting along a line at the bottom of the V, as best seen in Fig. 3, said scoop serving, during the rotation of the inner end of the connecting-rod, to gather up a sufficient quantity of oil and carry it up through the opening 15 leading to the crank-pin journal.

During the rotation of the crank-disks within the closed frame considerable quantities of oil will be spattered or carried outwardly by the centrifugal action of the disks against the inner walls of the frame. A portion of the oil thus spattered is caught by an oil-arrester 18, of identical construction with the scoop 16, except that it is secured to the upper surface of the strap securing the connecting-rod to the cross-head, and along the edge of an opening 20 in said strap leading to the journal for the connecting-pin, by which the connecting-rod is pivoted to the cross-head.

By the above construction it will be seen that the oil from the basin at the bottom of the frame is positively conducted to the oil-

receptacles of the main bearings, in this way the necessary quantity of oil being always insured. From the pipe 11 is a branch pipe or shunt 25 on one side of the frame leading to the oil-cup 26 of the eccentric. The several pipes are controlled by suitable valves or faucets, as is clearly obvious from the drawings.

Having described our invention, what we claim is—

1. In a lubricating apparatus, a suitable engine frame, an oil basin at a convenient point in the same, a suitable crank disk mounted in the frame in proximity to the basin, a collector having the edge of its open end adjacent to the periphery of the crank disk, and located near the surface of the oil, and a pipe forming a continuation of and leading from said collector to the oil cup of a suitable journal, substantially as set forth.

2. In a lubricating apparatus, a suitable engine frame, an oil basin at a convenient portion in the same, a crank disk mounted in the frame in proximity to the basin, a diverging collector having the edge of its open end located adjacent to the periphery of the crank disk, and having its passage substantially in line of the tangent to the said periphery, and a suitable pipe or pipes leading from the contracted end of the collector to the oil cups of the main journal bearings, substantially as set forth.

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

JOSEPH F. CHUSE.

RICHARD HEAP.

Witnesses:

GEO. S. RICHMOND,

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