

(No Model.)

2 Sheets—Sheet 1.

A. NESS.
LUBRICATOR.

No. 482,560.

Patented Sept. 13, 1892.

FIG. 2.

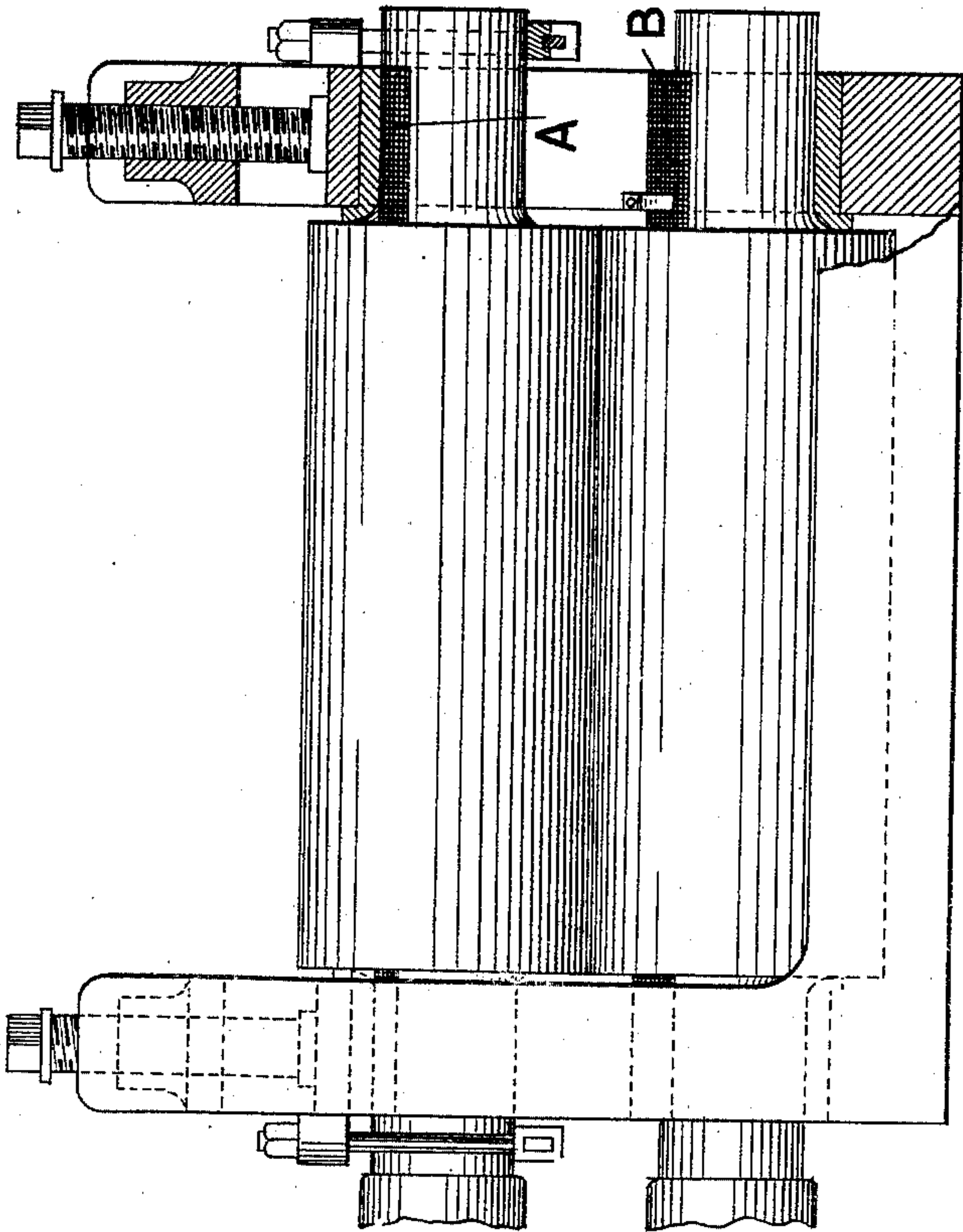


FIG. 1.

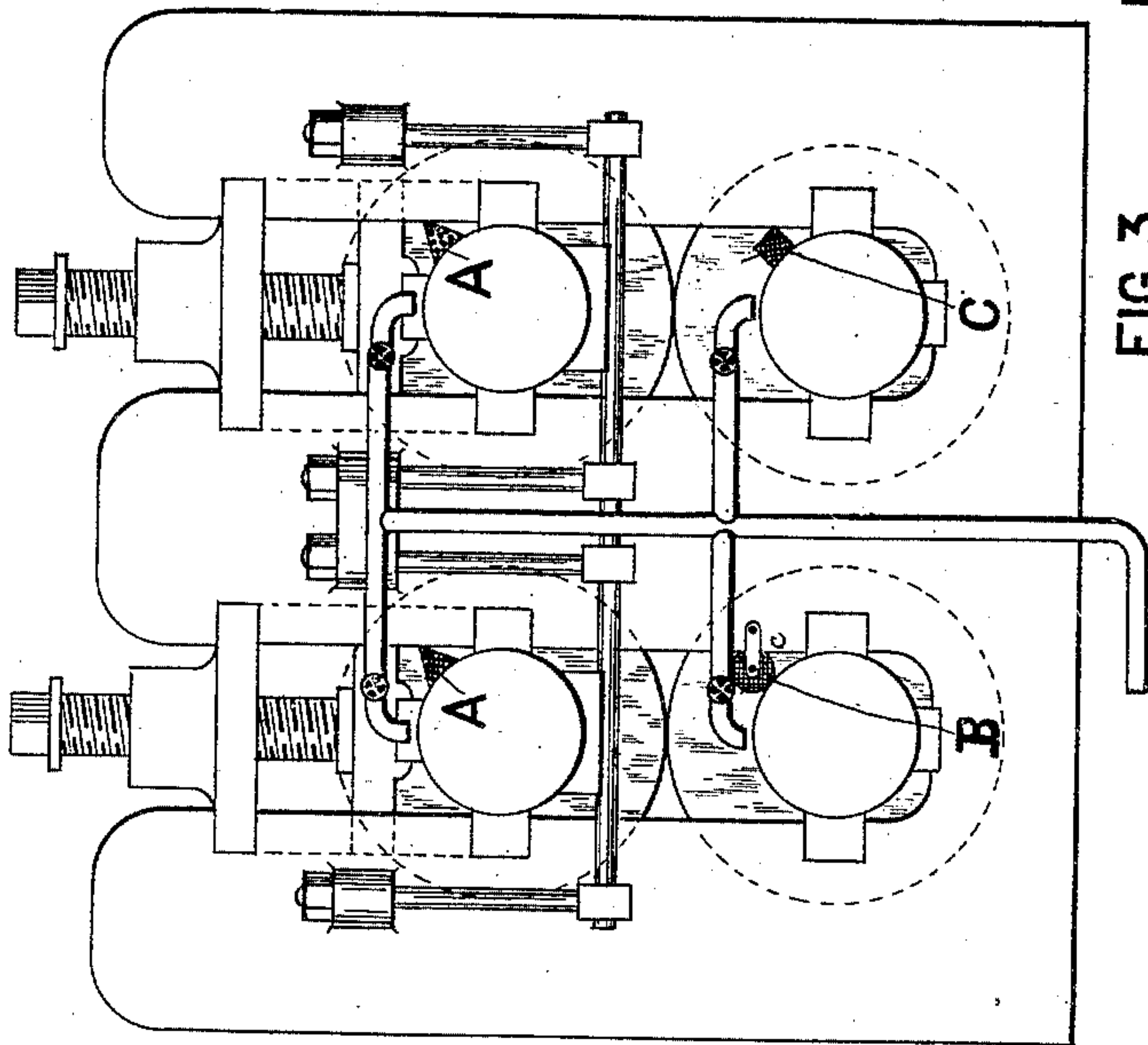


FIG. 6.

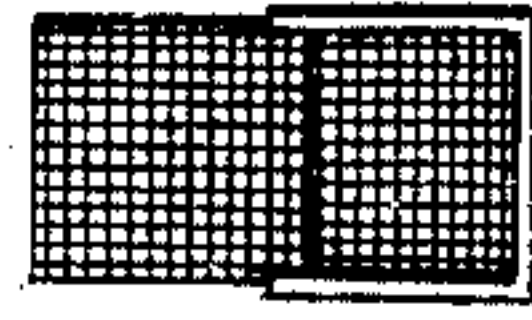


FIG. 5.

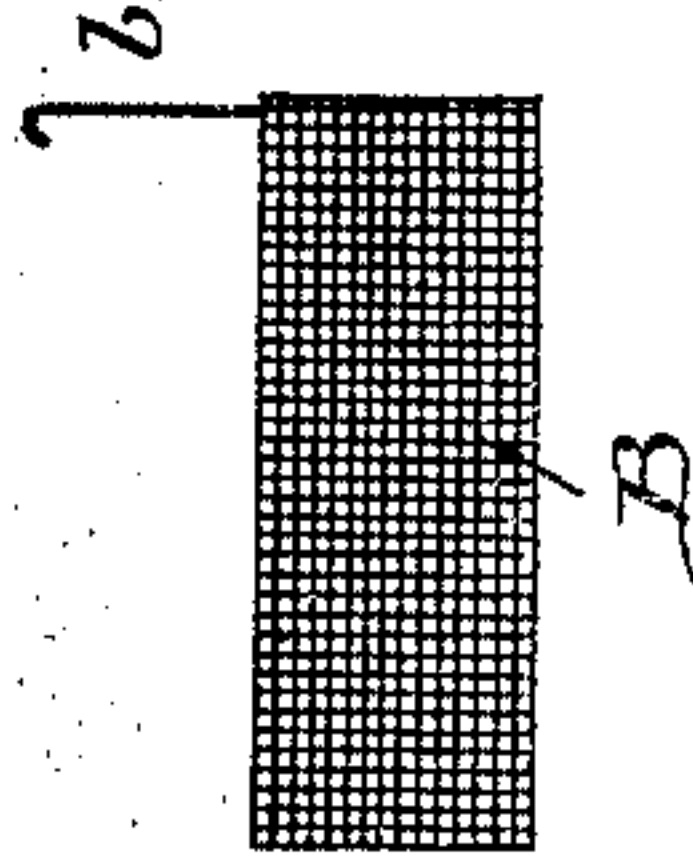


FIG. 5.

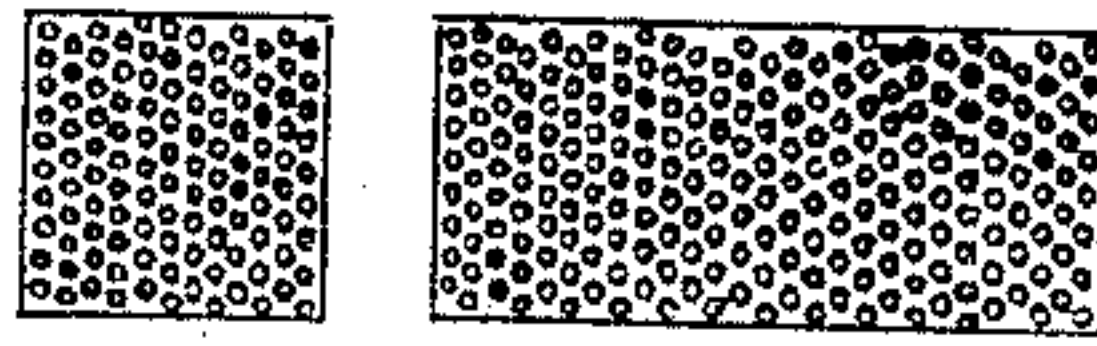


FIG. 4.

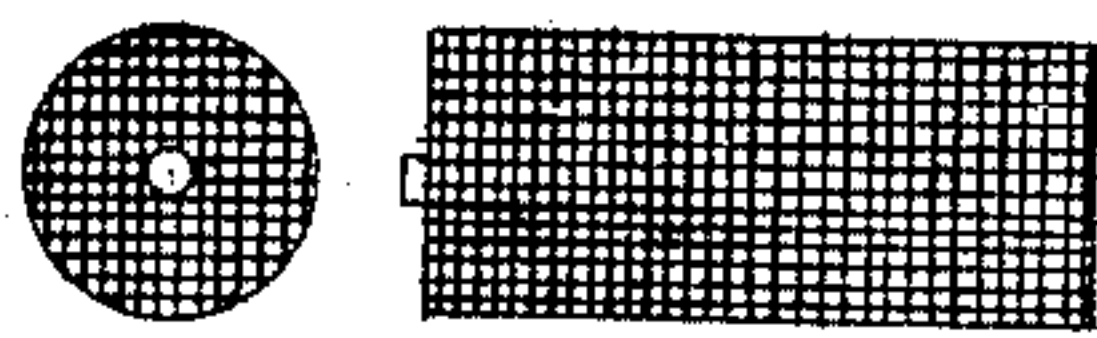
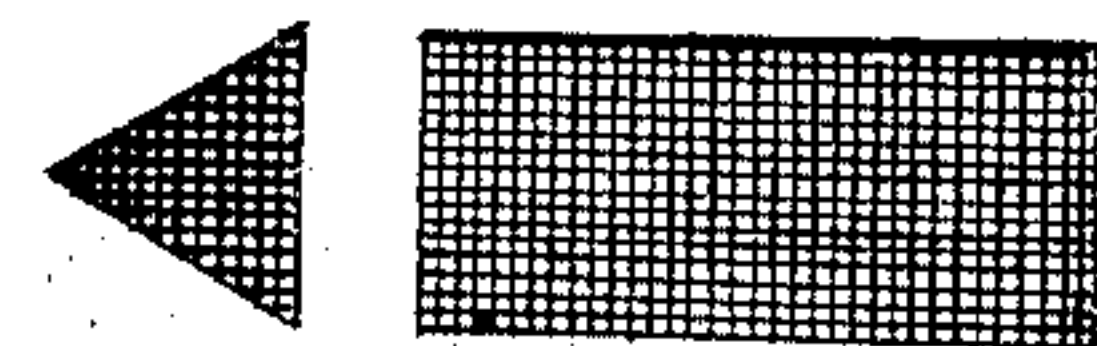


FIG. 3.



Witnesses

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Fig. 1^a

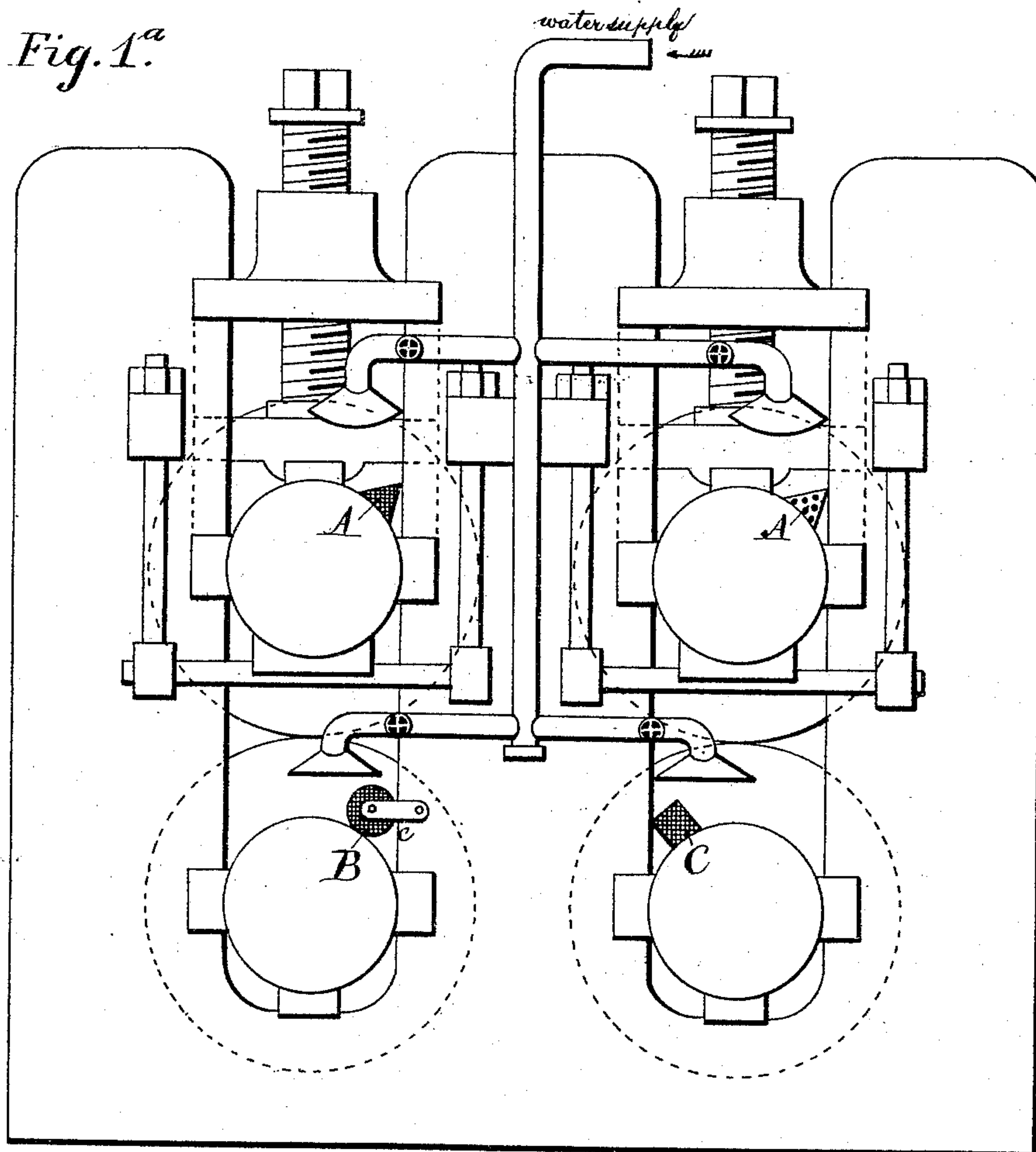
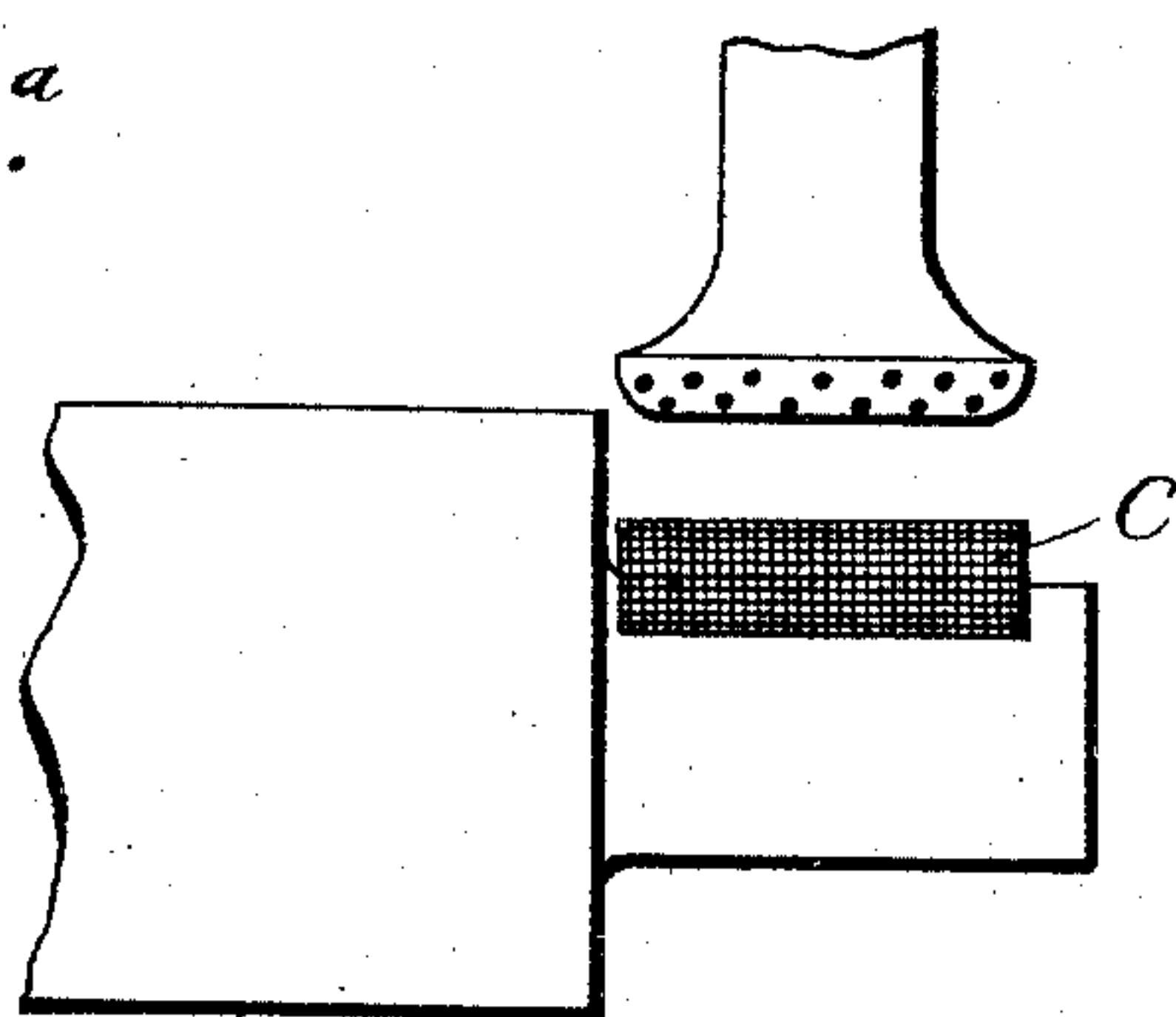


Fig. 2^a



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UNITED STATES PATENT OFFICE.

ARTHUR NESS, OF MIDDLESBROUGH-ON-TEES, ENGLAND.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 482,560, dated September 13, 1892.

Application filed December 7, 1891. Serial No. 414,320. (No model.) Patented in England July 9, 1887, No. 9,661.

To all whom it may concern:

Be it known that I, ARTHUR NESS, a subject of the Queen of Great Britain, residing at Middlesbrough-on-Tees, in the county of York, in the Kingdom of England, have invented certain new and useful Improvements in the Application of Lubricating Matter, (for which I have received Letters Patent in England, dated July 9, 1887, No. 9,661,) of which the following is a specification.

In applying lubricating material in a viscid or solid condition where the metallic surface is liable to be raised by excessive friction to a high temperature—such, for instance, as roll-necks—if the lubricant be applied to the metallic surface in the usual form of naked briquettes, slabs, or the like it is liable to become ignited by contact with the hot metallic surface, or, adhering thereto tenaciously, is wasted by being torn or sucked away in lumps. If canvas bags be employed for holding the lubricant, and thus preventing waste in the manner described, the bags are liable to catch fire and in any case rapidly wear out, and with the grease are waterproof. The lubricant sometimes has been placed in the hollow cap of the bearing, said cap having a perforated sheet-metal bottom abutting on the journal; but in this case the bottom was liable to wear away rapidly. It was difficult or impossible in this case, too, to apply water to the roll-neck, and the excessive heat was liable to burn the lubricant. Now my invention is designed to avoid these evils and to allow of lubrication with a solid lubricant, while at the same time both that lubricant and the roll-neck can be exposed to a stream of water, and thus kept moderately cool. Any device for directing a stream of water upon the bearing and lubricant—as, for example, a nozzle or cap attached to a water-pipe—may be used.

My invention consists in the application of porous envelopes of wire-gauze or closely-perforated sheet metal to contain the lubricant, these envelopes being of such size and shape as to lie on the surface requiring lubricating, leaving, however, sufficient space for water also to fall on the surface of the lubricating device. The lubricant thus inclosed in the envelope gradually oozes through the pores thereof to the surface to be lubricated, while

at the same time it cannot be detached in lumps, but only wears away as required, while the water continuously pouring over the lubricant envelope and the bearing keeps both so cooled that there is no chance of the lubricant catching fire or being destroyed.

Referring to the drawings, Figure 1 is an end view of the housing of a two-pair rolling-mill with three different forms of the lubricating envelope shown thereon. Fig. 1^a is substantially the same as Fig. 1, but shows in addition thereto a means for supplying water to the journal and lubricant simultaneously. Fig. 2 is a front elevation of the said rolling-mill partly in section. Fig. 2^a is a side view of one of the roll-necks, illustrating the relative positions thereto of the lubricating device and the delivery end of the water-supply pipe. Figs. 3, 4, and 5 show three different forms of envelope, Fig. 3 being a triangular prism, Fig. 4 a cylinder, and Fig. 5 a rectangle. Figs. 5^a and 6 show means for opening the perforated inclosing envelope.

Many other forms can be used, and where perforated iron is employed as the envelope it is preferable to have the surfaces slightly concave, so as to better fit the surface of the neck. The envelope can also be curved up at one or both ends so as to fit the roll neck or necks.

Referring to the drawings, Fig. 1 shows at A A a triangular envelope similar to that shown in Fig. 3, and at B a cylindrical envelope (shown in detail on Fig. 4) capable of revolving with the bearing and supplied with a spindle, which can be used for holding it more securely in position, while at C is shown a rectangular prismatic envelope, as set forth in detail in Fig. 5.

c is a bracket, which may be used, if desired, for holding the envelope B in position.

In forming the envelope the ends or sides or both are preferably made so that they can be opened and fresh lubricant inserted. This construction is shown in Figs. 5^a and 6, where A is the inclosing envelope and b the sliding end or door therethrough through which the lubricant is inserted. In some cases, however, it may be desirable to have the lubricating envelope permanently in place until it is worn out. In this case a filling-opening is

made in the top or side farthest from the surface to be lubricated and in such position that it can be filled *in situ*.

If it be requisite to protect the lubricant from dirt or grit, the fineness of the meshes of the gauze must be relied upon for this purpose, which fineness of mesh is found to result in increased economy in the wear of the lubricant up to the limit at which water would cease to penetrate the lubricator in sufficient quantities to cool the lubricant, say, with meshes of about thirty to the inch. A gauze of only sixteen to the inch, however, is usually effective in preventing the metallic surface from igniting the lubricant, while even a still coarser mesh is useful in preventing the waste of the lubricant by excessive adhesion to the metallic surface.

I declare that what I claim is—

1. The combination, with a journal-box and journal therein, of a foraminous metallic envelope within the journal-box and in contact with the journal, a solid lubricant inclosed by the envelope, and means for directing a stream of water upon the envelope and the journal,

the perforations or interstices in the envelope being of sufficient size to admit of the free passage of the water, whereby it comes into contact with the lubricant and cools it.

2. The combination, with a journal-box and the journal therein, of a loose envelope of perforated sheet metal within the journal-box bearing upon the journal, a solid lubricant inclosed by the envelope, and means for directing a stream of water upon the envelope, its contents, and the journal.

3. The combination, with a journal-box and the journal therein, of an envelope of wire-gauze within said journal-box, a solid lubricant inclosed by said envelope, and means for directing a stream of water upon the envelope, its contents, and the journal.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR NESS.

Witnesses:

T. W. MALKIN,
RICHARD O'CONNELL.