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LUBRICATING COMPOUND.

1,249,249. Specification of Letters Patent. Patented Dec. 4, 1917.

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To all whom it may concern:

Be it known that I, ANGELL B. THORSWIK, a citizen of the United States, and resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Lubricating Compounds, of which the following is a specification.

This invention relates to new and useful improvements in lubricants, and more particularly to lubricating compounds that are adapted to be applied to iron that is subjected to great heat, such as the plungers of hydraulic presses, dies used in drop forging, or any other similar processes. The primary object of the invention is to provide a lubricating compound of this character that will not evaporate under the intense heat to which dies or plungers are subjected to, but will remain in position, and lubricate the object during the entire process.

Another object of the invention is to provide a compound of this character which is easily and simply formed, inexpensive to manufacture, and one which will be very efficient in operation.

The nature of my new compound consists in rendering all surfaces, particularly rough metal surfaces smooth and slippery, and also owing to the peculiar properties of the various ingredients used in the formation of this compound, it produces the effect of suppressing and preventing the heating and consequent softening of the metal and it also becomes a perfect and powerful antifrictional agent whereby the temper of the metal is retained and the heat expansion prevented, all of which is essential in the operation of the various machines on which this lubricant is applied at a very high rate of speed, to prevent undue wear and tear thereto.

The lubricating compound is primarily intended for application to the plungers and shell holding pots of hydraulic presses, that are used for piercing shell stocks. Heretofore a lubricant comprising graphite and oil was smeared on the plungers, and on the inner surface of the shell holding pots during the operation of the press, but as this press is operated under tremendous pressure, and generates a great heat, the oil and graphite would burn, and when the plunger was withdrawn, the same would be covered with carbon and soot. Unless the parts of this press are completely lubricated, the plunger is liable to split and also the shell holding pots to crack when the plunger is operated at a very high rate of speed. As is common to hydraulic presses of this character, two pairs of plungers are provided that are operated alternately, and the shell holding pots are positioned on a turntable, revolved beneath said plungers.

My new and improved lubricating compound comprises a mixture of salt, borax, powdered coal, and water. These various ingredients are preferably mixed in an iron vessel that is cooled, and the various proportions used are salt 25%, borax 2%, powdered coal 10%, and water 63%. This will form a mass or compound of a soft or paste-like consistency which is easily applicable to the plungers of the press. If desired these ingredients may be mixed without the application of water thereto, and shipped with the directions regarding the proportion of water that is to be added before the same is applied.

To apply the lubricant, it is only necessary to thoroughly coat the surface of the object with the same by any desired means. When the lubricant is used on a hydraulic press of the character hereinbefore stated, the lubricant is placed in vessels adjacent the plungers, so that when the pair of plungers that are not active are moved by the operation of the active plungers, the first-mentioned plungers will be carried into the receptacle, and hence coated automatically with the lubricant. The inner surfaces of the shell holding pots will have to be coated with the lubricant by swabbing or any other desired means. As has been hereinbefore stated this lubricant is not limited to the use on hydraulic presses, as the same may be applied to various kinds of metal dies that are subject to great heat, for instance the dies used in drop forging.

In the use of this lubricant on a hydraulic press, when the plunger is coated with the said lubricant, and pierces the shell stock, owing to the intense heat generated by this operation, the water will evaporate, and leave on the surface of the plunger a grayish white coat which is very slippery and will thoroughly lubricate the article to which it is applied. This coating will stay on the plungers throughout the entire operation and will retain the metal in its normal tem-

per. The same operation is applicable to the inner surfaces of the shell holding pots, when the shell is being formed by being pierced by the plunger.

If desired any coloring matter may be added to the compound, to make the same any desired shade. From the foregoing description of the formation and operation of my new and improved lubricating compound the same will be readily understood, and it will be seen that I have provided a simple and efficient means for carrying out the objects of this invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. A lubricating compound of the class described comprising salt, borax, powdered coal in the proportions substantially as herein set forth, and sufficient liquid to form a mass of paste like consistency.

2. A lubricant compound of the class described comprising salt 25%, borax 2%, powdered coal 10%, and water 63%.

In testimony whereof, I affix my signature hereto.

ANGELL B. THORSWIK.