July 7, 1959 W. V. HEINZ 2,893,789

LUBRICATORS

Filed June 20, 1955

Fig. 1

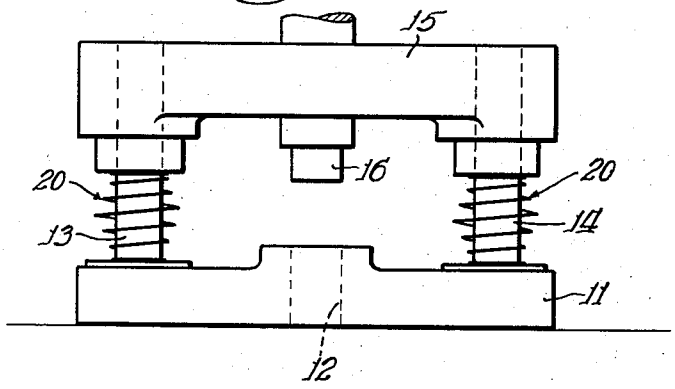


Fig. 4

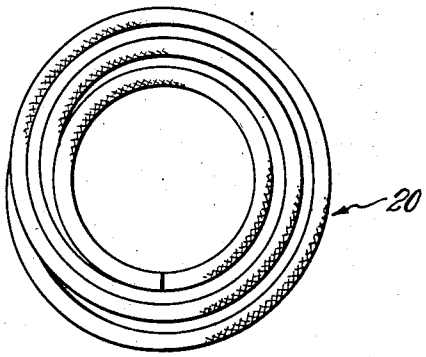


Fig. 2

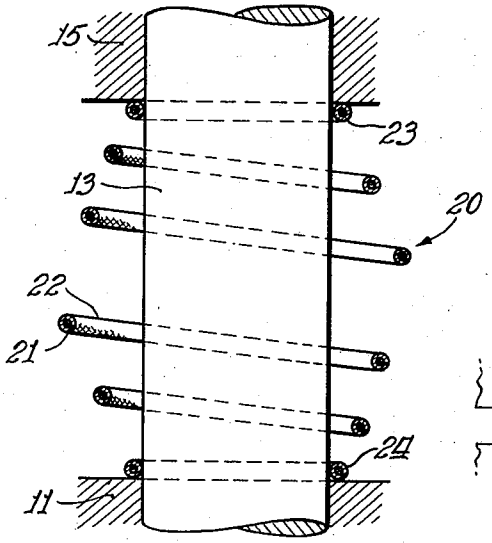
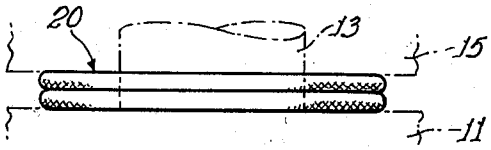


Fig. 3



Inventor:
William V. Heinz
By: Richard E. Burns
Atty.

United States Patent Office

2,893,789

Patented July 7, 1959

2,893,789

LUBRICATORS

William V. Heinz, La Salle, Ill.

Application June 20, 1955, Serial No. 516,653

4 Claims. (Cl. 308—5)

This invention relates to lubricators and is particularly useful for oiling a rod on which a member reciprocates.

One object of this invention is to provide an inexpensive, easily attached device for oiling a rod.

Another object of this invention is to provide a lubricating device that may be compressed into a small space and is adapted for oiling the guide post of a die-set.

Another object is to provide a lubricating device that may be adapted to fit several rod sizes.

Other objects of the invention will be apparent to those skilled in the art from the following detailed description and the drawing in which:

Fig. 1 is an elevational view of a die set with a punch in the upper position showing my improved lubricators in position surrounding the guide posts;

Fig. 2 is an enlarged elevational view of one of the guide posts showing the lubricator in greater detail;

Fig. 3 is an elevational view of the lubricator in its compressed position so that it is only two coils in height; and

Fig. 4 is a plan view of the lubricator shown in Fig. 3.

In many industries, die sets are used for cutting metal and plastic. These die sets are used in presses which reciprocate at a rapid rate of speed. The punch of the die set is guided on guide posts and because of the forces involved, these guide posts are easily scored if they are not properly lubricated. In most die sets, this lubrication is now accomplished by the operator squirting oil on the exposed guide post from an ordinary oil can.

If the operator is careless, the guide post may be damaged by lack of oil.

My invention comprehends a lubricator in the form of a specially shaped spiral spring covered with an absorbent material. This spring surrounds the guide post and when saturated with oil or grease, lubricates the post automatically with each cycle of the press.

Turning now to the drawing, in Fig. 1 is shown a die set which comprises a base **11** in which is mounted a die **12** and guide posts **13** and **14**. Mounted for reciprocation on the guide posts **13** and **14** is a plate **15** supporting a punch **16**.

Surrounding each of the guide posts **13** and **14** is a lubricator **20**. In the preferred embodiment shown, the lubricator **20** comprises a double helix of spring wire **21**, around which is positioned an absorbent covering **22**. The absorbent covering may be of wool, cotton or other material, but I prefer to use tubular woven nylon.

As is shown in Fig. 2, the double helix is formed with coils increasing in diameter from the upper coil to the center coil and then decreasing in diameter from the center coil to the lower coil. The uppermost coil **23** and lowermost coil **24** are in contact with the guide post **13**. I prefer to have coils **23** and **24** contact the entire circumference of the guide post.

Because of the shape of the helix, it may be compressed to only two coils in height as shown in Fig. 3. This ability to be compressed is very important as little

clearance is usually provided between the upper plate **15** and the base **11** of most die-sets.

In use, the lubricator **20** is positioned on the guide post by dropping it over the top, when the upper plate **15** is removed or if more convenient by starting an end around the post and turning the helix until all the coils surround the guide post. A few squirts of oil will saturate the absorbent covering **22**. Each time the press reciprocates, the upper coil **23** wipes the guide post **13**, leaving a film of oil on it. The absorbent material acts like a wick so that the oil will travel along it to any dry portion of the lubricator.

As the covering **22** wears on coil **23**, the operator may pull the worn portion off the end of coil **23** moving an unworn portion of the material around coil **23** and then cutting off the worn end. Thus, practically all of the covering **22** may be used.

I have described by lubricator in use on the guide posts of a die-set, however, it is also adapted to be used surrounding the punch for individually lubricating each punch in a single or multiple punch and die. The portion of the lubricator contacting the punch may take any desired shape so as to fully contact all portions thereof.

While I have shown and described a preferred embodiment of my invention, it will be understood that other forms may be utilized without departing from the spirit of my invention.

I claim:

1. A lubricator for a die set having a guide post comprising a helix of spring wire having coils increasing in diameter from the outermost coils to the innermost with the smaller diameter coils adapted to lie inside of the larger diameter coils when the helix is compressed and an absorbent covering for said wire adapted to absorb a lubricant, said helix being adapted to surround said guide post with a portion of said absorbent covering contacting said post.

2. A device for lubricating a rod on which a member is adapted to reciprocate comprising a helix of spring material surrounding said rod and an absorbent covering loosely surrounding said spring material whereby said covering may be moved along said helix, said helix being arranged to be compressed as said member reciprocates whereby a portion of said absorbent covering slides on said rod.

3. A lubricator for a device having a base, a guide post and a member adapted to reciprocate on said guide post so that it is in close proximity to said base in its lowest position comprising a helix of spring material having an absorbent covering coiled around said guide post between said base and said reciprocating member with the uppermost coil of said helix in contact with said guide post; the coils of said helix increasing in diameter from the uppermost coil to the center coil and then decreasing in diameter from the center coil to the lowermost coil so that the upper and lower coils may be positioned inside of the center coils when the helix is compressed between said reciprocating member and said base.

4. A lubricating device for a rod on which a member is adapted to reciprocate comprising a helix of spring wire and a covering of tubular woven nylon longitudinally slidable on said wire, said helix adapted to be positioned around said rod with a portion of said nylon contacting said rod and sliding thereon as said member reciprocates compressing said spring.

References Cited in the file of this patent

UNITED STATES PATENTS

1,473,839	Edson	Nov. 13, 1923
2,225,145	Baumbach	Dec. 17, 1940
2,713,524	Hagy	July 19, 1955