

UNITED STATES PATENT OFFICE

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LAPPING TOOL

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3 Claims. (Cl. 51—309)

This invention relates to lapping tools and the like, this application being a division of my pending application Serial No. 267,127, filed April 10, 1939.

My invention contemplates a lapping tool particularly adapted for use as a "finishing" lap with suitable granular abrasive to complete the finishing operation upon hard objects such as metal-working rolls and the like.

I have discovered that lapping tools composed of a friable metal composition produce highly satisfactory results for the purposes stated, and that lead, tin, bismuth and mercury, when combined in substantially the following proportions is particularly suitable for such a "finishing" lap when molded into block form:

Parts by weight	
Lead	60-70
Tin	10-25
Bismuth	20-30
Mercury	15

This material is generally softer than that used for so-called "roughing" laps, and when used with suitable granular abrasive or polishing powder will produce an excellent finish on hard steel or the like.

As an example of such a "finishing" lap within the foregoing proportions, the following composition may be employed to produce a finish on the work of high color:

Parts by weight	
Lead	70
Tin	25
Bismuth	20
Mercury	15

The abrasive to be used to greatest advantage with this lap is finely graded No. 5 lens powder.

The foregoing lap may be followed in finishing operations with a lap having the following composition:

Parts by weight	
Lead	60
Bismuth	30
Mercury	15
Tin	10

Such a lap develops a very high color on the work. By the use of this lap, microscopic analysis reveals that the surface of the work acquires a very high lustre therefrom.

5 The desirable characteristics attributable to the metals specified are those which will provide sufficient mechanical strength to enable the grain to cut, and yet, which will be soft enough to charge with abrasives, and sufficiently granular to wear away so as to obviate bunching or seizing of the cuttings and abrasive grains; and which will also provide a surface of the requisite porosity to receive the latter in order that they may be retired harmlessly from pressure contact with the surface of the work.

15 Various changes and modifications are contemplated within the scope of the following claims.

I claim:

1. A finishing lap consisting of a friable composition molded into block form containing approximately, by weight, 60 to 70 parts of lead, 10 to 25 parts of tin, 20 to 30 parts of bismuth, and 15 parts of mercury, characterized by having sufficient strength to apply a cutting pressure thereby to a fine polishing powder, and being soft enough to become charged with said powder.

2. A finishing lap consisting of a friable composition molded into block form containing approximately, by weight, 70 parts of lead, 20 parts of bismuth, 25 parts of tin, and 15 parts of mercury, characterized by having sufficient strength to apply a cutting pressure thereby to a fine polishing powder, and being soft enough to become charged with said powder.

3. A finishing lap consisting of a friable composition molded into block form containing approximately, by weight, 60 parts of lead, 30 parts of bismuth, 15 parts of mercury, and 10 parts of tin, characterized by having sufficient strength to apply a cutting pressure thereby to a fine polishing powder, and being soft enough to become charged with said powder.

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