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POLISHING COMPOUND

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This invention relates to a polishing or abrasive composition.

One of the objects of this invention is to provide a polishing composition which may be easily manufactured at a minimum cost. Another object is to provide a composition of the above character which may be used in conjunction with a buffer wheel or the like without undue waste. Another object is to provide a composition of the above character the use of which results in a considerable extension of the life of the average buffer wheel. Another object is to provide a composition of the above character being of sufficient tensile strength to hold together under stringent conditions of use and yet soft enough to be applied to the surface of a buffer wheel or the like. Another object is to provide a composition of the above character which will readily polish and smooth the surfaces of relatively hard metals, as, for example, steel, without resulting in undue wear and tear of the buffer wheels used during the polishing operation. Another object is to provide a composition of the above character which will give the buffer wheel a desirable firmness convenient for the polishing operation. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the various constituent elements and/or ingredients of the composition, the combinations of such ingredients and arrangements thereof, all as will be hereinafter described and the scope of the application of which will be indicated in the following claims.

As conducive to a clearer understanding of several of the features of this invention, it might here be pointed out that considerable difficulty has been experienced in polishing or "cutting" various stock metals. When such metals are received in sheet or wire form, for example, by a manufacturer of metal articles, e. g., jewelry and novelties, the surface thereof is usually rough and dull. The metal is usually first worked into the desired article after which the surface thereof must be polished or "cut". Generally speaking, this polishing or smoothing of the surface of the metal to produce a bright lustre is known in the art as "cutting" and comprises pressing the metal article against the rotating surface of a buffer wheel having applied thereto an abrasive composition or the like. Accordingly the term "cutting" as used herinbefore or hereinafter is intended to imply any such polishing or smoothing process capable of producing a bright smooth surface on metal articles. The abrasive

compositions now being used for the cutting process have several faults which make this operation time-consuming and expensive. These abrasive compositions are usually supplied to the manufacturer in cake form, the operator pressing the cake against the rotating surface of the buffer wheel each time more of the composition is needed. When the composition is so applied to the wheel, a large amount thereof is chewed away from the cake, flies away from the wheel, and is consequently wasted. Furthermore these compositions now in use have no particular strengthening or wear-resisting effect on the wheel and consequently the wheels become soft and undesirable in a short length of time. Usually the buffer wheels used in the cutting process comprise circular layers of textile material held together in clamped relationship. The article being cut is generally applied to the central circumferential portion of the wheel and this section of the wheel therefore wears down much more quickly than the sides thereof. Consequently in a comparatively short period of time the laborer must stop the wheel and rearrange the layers thereof to provide a new high surface in the central area of the wheel. Thus the wheels are not only quickly worn down but are softened so that they must be discarded while they still are of usable dimensions. One of the objects of this invention is to provide an abrasive composition which will overcome the above-mentioned difficulties as well as many others.

An example of my cutting composition follows, the ingredients thereof being given in weight units, although it will be understood that the proportions of ingredients may be varied within reasonable limits:—

1250 weight units of silicious earth	
750 weight units of aluminum oxide	
250 weight units of tripoli powder	40
250 weight units of petroleum jelly	
125 weight units of ceresine wax	
125 weight units of stearic acid	
50 weight units of Montan wax	
25-250 weight units of tar or asphalt	45
25-250 weight units of waste	

Silicious earth is a raw material abrasive in character and having as its chief ingredient silicon dioxide. Tripoli powder is also a raw material abrasive in character and sometimes known as "rotten stone".

Although the ingredients of this composition may be mixed in a number of ways, we have obtained superior results by making the composi-

tion in the following manner:—The proper proportions of petroleum jelly, ceresine wax, stearic acid and Montan wax are placed in a suitable container and heated and preferably stirred until the mixture is melted. Next the silicious earth, aluminum oxide and tripoli powder, mixed in proper proportions, are slowly added to the mixture in the container while the mass is being stirred, until all contents in the container are thoroughly mixed into a substantially homogeneous mass. The tar or asphalt may then be added and mixed into the mass after which the cotton waste is added. The entire mixture is thoroughly stirred while being heated and is then poured into suitable molds for cooling. The molds may take any convenient shape and after the mixture has cooled the cakes of abrasive composition are ready for use.

We have found that the proportion of silicious earth and tripoli powder may be varied with respect to each other although the total percentage given is preferable.

Our experiments indicate that the silicious earth, aluminum oxide and tripoli powder serve as the abrasives which do the actual cutting when the composition is applied to the wheel and thus will hereinafter be generically termed "abrasives". However they may have other functions. The petroleum jelly apparently acts as a lubricant for the abrasives during the actual cutting after the composition has been applied to the wheel, and will thus hereinafter be referred to generically as a "lubricant". The ceresine wax and the Montan wax aid in giving the composition the desired degree of hardness and stability after the composition has been formed into cakes for use, although they apparently soften sufficiently when the cake is applied to the wheel to avoid damaging the wheel; they will accordingly hereinafter be referred to as "hardeners". The stearic acid is probably melted when the composition is applied to the wheel by the frictional heat of such application and thus in its liquid form aids in dispersing the composition evenly over the surface of the wheel; it will be hereinafter termed generically a "spreading agent". The frictional heat during application converts the tar to a semi-viscous state so that it gradually seeps into the individual layers of the wheel to stiffen them. Thus the tar stiffens the working surface of the wheel to materially increase its resistance to wear and tear during use and to prevent wheel deterioration when the work is pressed against the wheel. Accordingly, the tar will be hereinafter referred to generically as a "stiffening agent". The cotton waste is preferably a mass of tangled cotton strands, although other fibrous strands of a similar nature might be used. The strands thereof are dispersed evenly throughout the mass of the composition and thus act as binders to hold the composition together especially during application to the wheel. As explained above, during application of these cutting compounds, particles thereof tend to fly away from cake and from the wheel and into the waste blower. The binder or waste greatly reduces such disintegration. Therefore the waste or the like will hereinafter be referred to generically as a "binder".

Thus my abrasive composition preferably comprises 2250 weight units of abrasives, 1250 weight units of lubricant, 175 weight units of hardener, 125 weight units of spreading agent, 25-250 weight units of stiffening agent and 25-250 weight units of binder.

This abrasive composition is found to have a number of advantages over cutting compositions now in general use. When it is applied to the wheel very little disintegration takes place and very few particles are wasted by flying away from the surface thereof. The composition has sufficient hardness and stability to hold together for extended periods of time without deterioration and may thus be stored for future use. When a cake of the composition is pressed against a buffer wheel it flows evenly about the surface thereof so that all portions of the surface of the wheel are covered with the abrasive material. Further still, the stiffening action of the tar, as mentioned above, increases the efficiency of the wheel and lengthens the life of each wheel materially. Accordingly we have found that by using this polishing compound in cutting, the work is cut more quickly and efficiently, the number of buffer wheels used in the cutting operation is materially reduced, the amount of polishing or abrasive composition necessary for the cutting operation is reduced, and that it is unnecessary to change the layers on the wheel to make a new high central portion as often as formerly.

As many possible embodiments might be made of the several features of the above invention and as the art herein described may be varied in various parts, all without departing from the scope of the invention, it is to be understood that all matter hereinbefore set forth is to be interpreted as illustrative and not in a limiting sense.

We claim:

1. An abrasive composition comprising 1250 weight units of silicious earth, 750 weight units of aluminum oxide, 250 weight units of tripoli powder, 250 weight units of petroleum jelly, 125 weight units of ceresine wax, 125 weight units of stearic acid, 50 weight units of Montan wax, a quantity of tar, and 25-250 weight units of cotton waste.
2. An abrasive composition comprising silicious earth, aluminum oxide, tripoli powder, petroleum jelly, ceresine wax, stearic acid, Montan wax, tar, and cotton waste.
3. An abrasive composition comprising silicious earth, aluminum oxide, tripoli powder, petroleum jelly, ceresine wax, stearic acid, Montan wax, and tar.
4. An abrasive composition comprising an abrasive, petroleum jelly, ceresine wax, stearic acid, Montan wax, tar, and cotton waste.
5. An abrasive composition comprising an abrasive, a lubricant, ceresine wax, stearic acid, Montan wax, tar, and cotton waste.
6. An abrasive composition comprising an abrasive, a lubricant, a hardener, stearic acid, tar, and cotton waste.

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