UNITED STATES PATENT OFFICE.

ROBERT H. MARTIN, OF BROOKLYN, NEW YORK.

COMPOSITION OF MATTER.

SPECIFICATION forming part of Letters Patent No. 569,759, dated October 20, 1896.

Application filed January 9, 1896. Serial No. 574,918. (No specimens.)

To all whom it may concern:

Be it known that I, ROBERT H. MARTIN, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Composition of Matter, of which the following is a specification.

My invention relates to a new and useful composition of matter, or what may be called a "composite" mineral and metallic product, which is adapted to a great many uses in the arts, as will be more particularly stated hereinafter.

The invention, generally stated, consists in combining by the action of pressure fine metallic particles, preferably the soft metals, with shredded or fibered asbestos, in such proportions as preferred. The metal may be in the form of filings, shavings, or clippings of any sort, or it may be metal especially reduced to a fine condition for the express purpose of making into my product. The metal and the asbestos are thoroughly mixed together, there being present such proportion of asbestos fiber as may be preferred, depending upon the desired product. The thoroughly-mixed mass of metallic particles and asbestos fiber is placed in any suitable press and subjected to pressure, whereby it is pressed into the ultimate form of the article to be made or into a convenient shape for subsequent manipulation, as, for instance, into bars, plates, sheets, &c.

Any metallic body may be used, such as iron or steel filings, clippings, &c., from which a useful product will be made. A product especially useful is obtained when particles of the soft metals, such as lead, copper, &c., are employed, because these soft metals under pressure combine very intimately with the asbestos, producing substantially the same effect as though they had been melted and the asbestos fibers thoroughly intermixed, which, however, would be impossible, because the asbestos being much lighter than the metals would not be thoroughly incorporated with them when in melted condition, and, moreover, the heat might calcine the asbestos. Furthermore, I have discovered that a bar or plate made from soft metal and asbestos fibers is tougher, lighter, has greater tensile strength, and is generally stronger and better adapted to resist strains than a like plate made of the metal alone.

I wish it to be understood that my invention includes the combination not only of one kind of metal and asbestos fibers, but of two or more metals so combined, depending on the composition to be made. For example, lead and antimony with asbestos and a lubricant make good bearings; also, for certain uses a hard and a soft metal may be combined with the asbestos.

Among the uses to which my invention can be put are the following: The hard metals, combined with asbestos, as stated, may be used for many of the purposes to which the solid metals, iron, steel, and the like, are now put.

The products made by the use of the soft metals and asbestos fiber are better adapted to many uses than are the soft metals by themselves, such, for instance, as vessels for containing acids, storage-battery cells, journal-boxes, and bearings generally, packings and calking material for tamped joints, because they not only have greater rigidity and strength than the soft metals by themselves, but, also, owing to the presence of the asbestos, the melting-point of the metal is considerably lifted. Consequently heat action is less injurious.

A part of my invention consists in combining with the soft metals and the asbestos fibers the natural lubricants, such as soapstone, plumbago, talc, powdered asbestos, and the like, thus producing good antifriction-bearings. The bars, plates, or sheets made under my invention are adapted to be cut, bored, and even threaded to make them up into such articles as may be desired, in substantially the same manner as the metals themselves, and the packing and calking material may be forced into position or may be broken up and rammed into place for calking joints, &c., in the same manner as metal calking or packing is now used.

I claim—

1. The above-described composition of matter composed essentially of metal in small particles and asbestos fibers, combined and consolidated by pressure, for the purposes set forth.

2. The above-described composition of mat-

ter composed essentially of soft metals, such as lead or copper in small particles, and asbestos fiber intimately combined and consolidated by pressure, for the purposes set forth.

3. The above-described composition of matter composed essentially of metal in small particles, asbestos fiber and a natural lubricant, combined and consolidated by pressure, for the purposes set forth.

4. The above-described composition of matter composed essentially of a plurality of metals in small particles, and asbestos fiber combined and consolidated by pressure, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 24th day of December, A. D. 1895.

ROBERT H. MARTIN.

Witnesses:

PHILLIPS ABBOTT,

A. B. MORRISON.