This invention relates to the manufacture of bituminous and like compositions and has for its object to provide plastic masses which are capable of being machined and do not break easily.

It has already been proposed to make compositions containing coal tar or petroleum pitch, mineral substances and fibrous materials by mixing these at temperatures of 100-300° C., but this does not enable the benefits of the present invention to be obtained.

The present invention consists in the manufacture of plastic masses which are capable of being machined and which do not break easily, by suitably incorporating a suitable form of hard pitch with asbestos fibres or flakes or the like preferably in amount 10 to 15% of the total composition, with or without pulverulent substances such as stone dust or the like.

In carrying the invention into effect in one form by way of example, about 10 to 15% of fibres, which may be long or short or mixed, such as for instance, asbestos, hemp, cellulose, hair or the like, if desired after a preliminary heating are added to a hot molten hard pitch. The mass may be either pressed into moulded articles while hot or worked up cold, like hard rubber.

It can also be poured directly whilst liquid into moulds.

Bodies thus prepared have excellent qualities as regards tensile strength, toughness, electrical resistivity and stability to acids and heat.

Modifications may be made in the method described above, for instance, instead of fibres, flakes may be employed, for instance mica or mixtures of fibres and flakes may be used.

Pulverulent substances such as stone dust may be incorporated in the hot mixture.

Hard pitch for purposes of the present invention may be of any suitable kind, for instance, a brittle pitch having a high softening point, for instance, a hard prodorite pitch or the like according to British specifications Nos. 201,650, 228,287 or 237,010.

Such a pitch is a pitch which can be made fluid by heat but is not liable to change materially its strength over the range of temperature in the region in which the products may be used. To test the suitability of any particular pitch for this purpose the Brinell method may be employed.

The standard Brinell test as commonly employed for steels, that is to say, with a ball of 10 mms. diameter and a load of 3000 kgs. must however be modified for the present purpose owing to the lower tensile strength of the substances here being tested. A ball of 20 mms. in diameter and a load of 100 kgs. gives readings particularly suitable for the purposes in question.

For use according to the present invention, the softening points as illustrated by a substantial change in the Brinell hardness figure should not occur below about 40° C. (or some higher temperature according to the use to which the composition is to be put) and the Brinell figure with a ball of 20 mms. and a load of 100 kgs. should be not below about 10 and preferably not less than 15.

Such a pitch may be prepared from gas pitch by giving gas pitch such heat treatment, that when tested by the Brinell method, it has substantially constant hardness between say about 0° C. and about 40° C.

Plastic masses made according to the present invention may be used for any desired purpose, for instance for the purposes or by the methods indicated in British specifications Nos. 202,248, 202,506 and 238,025.

Products may be made according to the present invention which are plastic when heated, can be pressed into moulded articles or worked up cold and when set can be turned, filed, drilled and nailed.

Rods may be provide, suitable for the cutting of screw threads and thin sheets can be
obtained which can be dropped from a height of several meters on to a hard floor without breaking.

Bodies of low density may be obtained, for example, of density 1.5 to 1.6.

I claim:—

A composition of matter of great toughness and high tensile strength comprising a mixture of a hard brittle pitch which retains its hardness substantially unchanged by temperatures up to 40 degrees C. under a Brinell hardness test, with ten to fifteen percent of asbestos fibres, and mineral dust.

In testimony whereof I have signed my name to this specification,

GEORG ZIMMERMANN.