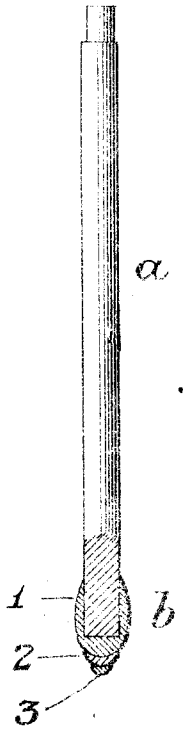
W. A. FAIRBURN.

MATCH.

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1,067,326. Patented July 15, 1913.



Witnesses:
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MATCH.

1,067,326. Specification of Letters Patent. Patented July 15, 1913.

Application filed October 1, 1912. Serial No. 723,295.

To all whom it may concern:

Be it known that I, WILLIAM A. FAIRBURN, a citizen of the United States, and resident of Short Hills, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Matches, of which the following is a specification.

This invention relates to that type of match wherein the head is composed of a bulb of combustible and flaming material, non-ignitible by friction on any ordinary friction rubbing-surface, and a tip of a composition ignitible by friction on any such surface, the said bulb being of high heating and flaming character and serving as a vehicle to transmit the flame from the tip to the match splint and also being designed to prevent lateral rubbing contact of the ignition tips with each other or with the sides of the box in which the matches are contained. In such matches when the tip is composed of an ignition composition free from white phosphorus, and employing an oxidizing substance as an ingredient, a primary ignition tip of comparatively large size is required in order to produce, when it is lighted, a sufficient body of flame to ignite the bulb smoothly and unhesitatingly. Thus the tips of the matches are apt to project to or beyond the sides of the bulbs, and by coming in rubbing contact with each other defeat the safety purpose of the bulbs. Moreover, from the point of economy in manufacture such tips of large size are objectionable.

To provide a match wherein the primary ignition composition, free from white or yellow phosphorus, may be economically employed, and yet the flame be efficiently transmitted therefrom to the bulb without liability of a double or intermittent flare, is the object of my invention; and to that end, the invention comprises a match having a head in which is provided between a relatively small tip and the bulb, a thin layer of combustible transmission composition which is rapidly heated and easily ignitible by the flame from the tip, and at the same time quickly generates sufficient heat with flame to effect and insure the easy and prompt ignition of the bulb, as will be hereinafter described and claimed.

In the drawing, which illustrates a sectional elevation of my improved match as enlarged, *a* designates the splint and *b* the head. This head comprises a bulb-like mass 1 of combustible and flaming material, non-ignitible by friction on any ordinary friction rubbing-surface; a small tip 3 of ignition material which may be readily ignited by friction on any such surface, and an intermediate thin layer of material 2 which, while not ignitible by ordinary friction except on a specially prepared rubbing surface, is readily ignitible by the heat generated by the tip, and at the same time produces sufficient heat and volume of flame to ignite the bulb easily and smoothly. Hence when the primary ignition tip is frictionally ignited uniform and easy transmission of the flame therefrom to the bulb, through the medium of the intermediate layer of composition, is effected.

Any known or approved composition for the bulb may be employed, such, for example, as zinc oxid, chlorate of potash, ground glass, plaster and glue, combined in suitable proportions. The end of the splint, preferably treated with paraffin in the usual manner, is dipped into this composition to produce the bulb 1. When this bulb has set or hardened its outer end is dipped into or otherwise coated with an ignition composition to produce the transmission layer 2, which latter composition is preferably such as is commonly used for the production of match heads designed to strike only on a specially prepared surface which is usually applied to the exterior of the match box. Any known or approved match head composition of this character may be employed, such, for example, as thiosulfate of lead, chlorate of potash, ground glass, sulfur, amorphous phosphorus, kieselguhr and glue, combined in suitable proportions. The thin layer of composition can be readily ignited by a very small flame; and in virtue of its high heating character the layer, when so ignited, readily fires the bulb.

The primary ignition tip 3 on the layer is composed of a small quantity of match composition free from white phosphorus as above-mentioned. This tip can be readily ignited by friction on any ordinary friction rubbing-surface, and when so ignited its flame immediately attacks and ignites the composition of the contiguous layer 2. Any known or approved strike-any-where match composition, free from white or yellow phos-

phorus and containing oxidizing material, may be employed for the tip, such, for example, as sesquisulfid of phosphorus, chlorate of potash, zinc oxid, ground glass, plaster and glue, combined in suitable proportions.

It will be seen that the provision between the primary ignition tip and the bulb, of the layer of match composition described, permits the use of a very small quantity of composition for the tip, thus not only resulting in economy of manufacture, but also obviating any liability of lateral contact of the tips with each other or with the sides of the box in which the matches are contained.

I claim—

1. As a new article of manufacture, a match having a head composed of a bulb of combustible and flaming material, non-ignitible by friction on any ordinary friction rubbing-surface, a thin layer of composition on said bulb, non-ignitible by ordinary friction except on a specially prepared rubbing-surface, and a primary ignition tip on said layer ignitible by friction on any ordinary friction rubbing-surface, whereby when the tip is ignited the flame will be smoothly transmitted therefrom with increased volume to the bulb.

2. As a new article of manufacture, a match having a head composed of a bulb of combustible and flaming material, non-ignitible by friction on any ordinary friction rubbing-surface, a primary ignition tip ignitible by friction on any ordinary friction rubbing-surface, said tip being free of white phosphorus and containing an oxidizing material, and a thin layer of composition of high heating character between the tip and the bulb, said composition being non-ignitible by side friction of the match heads.

Signed at New York, in the county and State of New York this 30th day of Sept., A. D. 1912.

WILLIAM ARMSTRONG FAIRBURN.

Witnesses:
B. I. Ross,
Martha M. Woodland.