No. 662,814. Patented Nov. 27, 1900.

A. PFISTER.

PROCESS OF MANUFACTURING MATCHES.

(Application filed June 23, 1900.)

(No Model.)

Fig. 1.

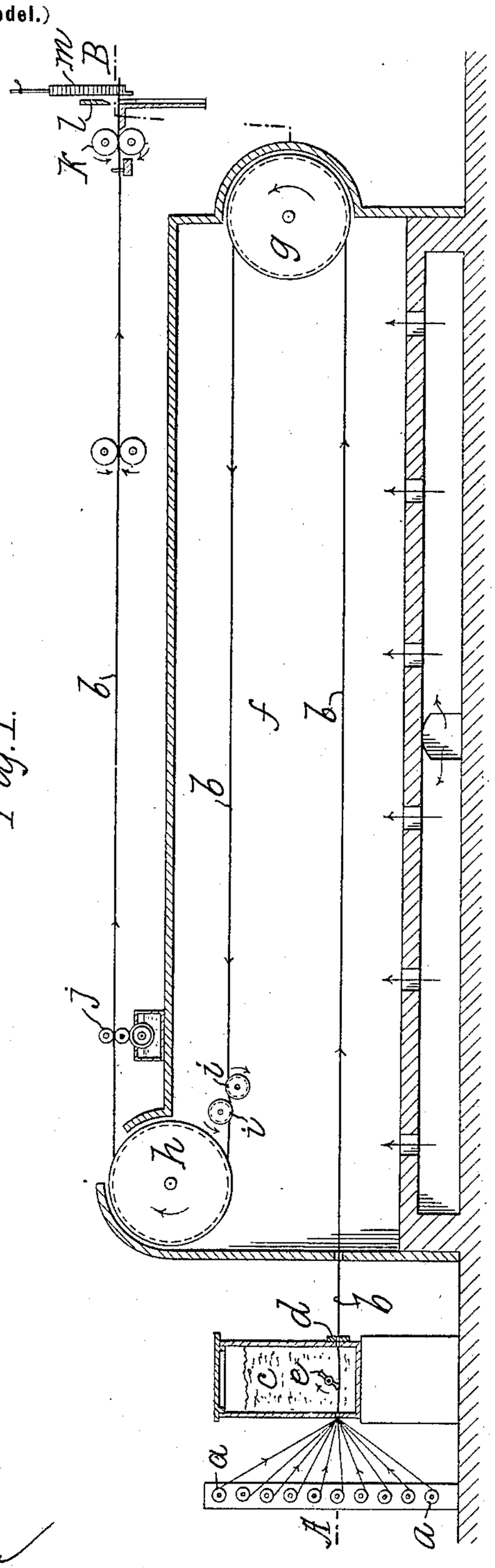
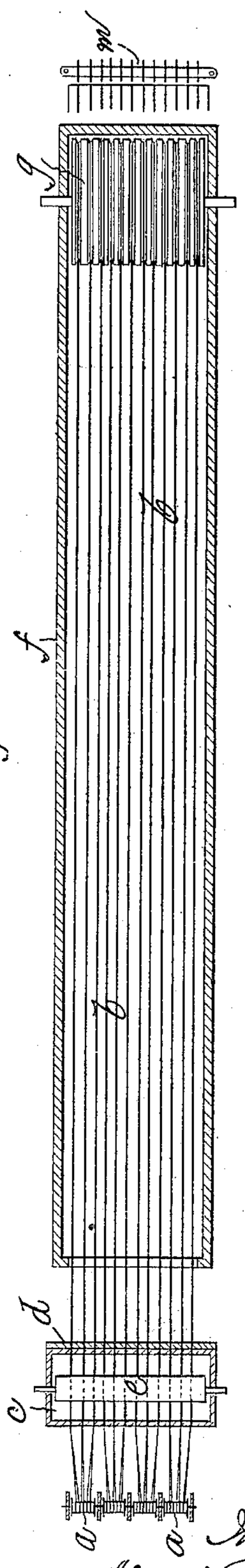


Fig. 2.



Witnesses
[illegible]
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ALOIS PFISTER, OF ST. PÖLTEN, AUSTRIA-HUNGARY.

PROCESS OF MANUFACTURING MATCHES.

SPECIFICATION forming part of Letters Patent No. 662,814, dated November 27, 1900.

Application filed June 23, 1900. Serial No. 21,369. (No model.)

To all whom it may concern:

Be it known that I, ALOIS PFISTER, a subject of the Emperor of Austria-Hungary, residing at St. Pölten, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Processes for the Manufacture of Matches from Spun Vegetable Fibrous Material; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to a process for the manufacture of matches from spun threads of vegetable fibrous materials, as jute and the like.

The process consists of a continuous series of operations whereby the spun fibrous material is prepared and delivered in lengths ready for dipping. Threads impregnated with a coloring-matter and a composition for preventing glowing and in number corresponding to the thickness to be given to the matches are drawn off from bobbins, passed parallel and close to one another through a colored adhesive material mixed with wood-pulp, and combined to form a cord which is shaped by being led through a draw-plate. For the purpose of hardening the adhesive material, so as to give the matches the necessary stiffness, a convenient number of such cords lying close together after emerging from the draw-plate are conducted to and fro in a drying-chamber and fed forward by rotating grooved rollers. These cords are next subjected to the action of rapidly-rotating grooved polishing-rollers to smooth the hardened outer surfaces of the threads and are then finally drawn between the rollers of a "paraffining" apparatus. By means of a feeding mechanism they are then advanced beneath a knife, which cuts off pieces of the length of a match, which are placed directly in the dipping-frame. Apparatus for carrying out this process is shown diagrammatically in the accompanying drawings, in which—

Figure 1 is a vertical section, and Fig. 2 a section corresponding to A B of Fig. 1.

The threads of jute or the like, impregnated in the usual way with a coloring-matter and a composition to prevent glowing, are drawn from bobbins *a*, and several of them, in number corresponding to the thickness to be given to the matches, are laid parallel to one another without twisting and combined to form a cord *b*. In order to produce large quantities, several of such cords are simultaneously submitted to further treatment alongside one another at fixed distances apart.

To combine the separate parallel threads of each cord and to obtain a smooth outer surface, as well as the necessary stiffness of the final product, the cords *b* are drawn through a tank *c* filled with adhesive material. The cords enter the tank *c* through small holes in one side wall of the tank and emerge from holes in the draw-plate *d*, arranged on the opposite side wall. In the tank *c* is arranged a rotating fly *e* or a stirring device of any suitable kind, which keeps the adhesive material in constant motion during the passage of the cords and effects the application thereof to the threads.

The adhesive material for about a million matches consists of from two to five kilograms of paste, from two to five kilograms of glue, fifteen grams of coloring-matter, and thirty kilograms of wood-pulp. The wood-pulp serves mainly to fill up the interstices in the cords with an easily-combustible material and to insure the equality of the final product.

The cords *b* are led from the draw-plate into a drying-chamber *f* in order to harden the adhesive material completely. In the chamber *f* they are passed over rotating grooved rollers *g* and *h* and caused to traverse as great a distance as practicable and meanwhile completely smoothed and equalized by rapidly-rotating grooved polishing-rollers *i*. The dried cords *b* are now passed through the rollers *j* of a paraffining device of the usual type and are then conducted by suitable feeding mechanism, as rollers *k*, to a knife *l*. The leading ends of the cords enter the dipping-frame *m* and are held fast between the slats thereof at the moment when the lengths of cord are cut off by the knife.

In order to dry the paraffin rapidly, the cords *b* may be subjected during their pas-

sage from the paraffining device to the knife to a current of cool air produced by a bellows. The drying-chamber *f* may be vertical instead of horizontal.

I claim—

1. The process, which consists in bunching a suitable number of threads of fibrous material, passing the bunch of threads through a liquid adhesive containing wood-pulp, consolidating the bunch of threads so treated and stripping therefrom the excess of adhesive and wood-pulp and then drying, polishing and paraffining the said bunch of threads, for the purpose set forth.

2. The process, which consists in impregnating threads of fibrous material with coloring-matter and with a compound that will prevent glowing, bunching a suitable number of such threads, passing them through a liquid adhesive containing coloring-matter and wood-pulp, consolidating the bunch of threads so treated and stripping therefrom the excess of adhesive and wood-pulp, then drying, polishing and paraffining said bunch of threads, for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ALOIS PFISTER.

Witnesses:

JOSEF RÜBUSCH,

ALVESTO S. HOGUE.