

UNITED STATES PATENT OFFICE.

GUSTAV GOLDMAN, OF BALTIMORE, MARYLAND.

PROCESS OF UNITING OR MATTING FIBERS TOGETHER.

SPECIFICATION forming part of Letters Patent No. 758,246, dated April 26, 1904.

Application filed November 28, 1903. Serial No. 183,058. (No specimens.)

To all whom it may concern:

Be it known that I, GUSTAV GOLDMAN, a resident of Baltimore, Maryland, have invented a new and useful Process of Uniting or Matting
5 Fingers Together, which invention is fully set forth in the following specification.

This invention relates to the art of binding fibers together in a matted mass.

In an application, Serial No. 183,057, filed
10 November 28, 1903, I have described a process of binding fibers together by introducing between the fibers the necessary ingredients for forming a resinate, such as a resin and a metallic base, and subsequently treating these sub-
15 stances so as to convert the same into a resinate which will serve as the active binding agent.

The present invention consists in taking a resinate previously formed or prepared in any suitable manner and introducing the same in a
20 dry finely-divided form between the fibers and subsequently treating the same in such a way as to convert the dry finely-divided resinate into an active binding agent. This treatment may and preferably does consist in fus-
25 ing the resinate by the application of heat either in the presence of moisture or pressure or not, as may be desired. Any particular kind of fiber desired may be treated by this process, it being applicable either to animal,
30 vegetable, or mineral fibers or to mixtures of these fibers. Any resinate may be employed, though preferably the resinate formed by the combination of resin and a suitable metallic
35 of the metals which will produce a resinate insoluble in water is used.

In the active practice of the invention the following process has been found to give satisfactory results, viz.: Zinc resinate prepared
40 in any suitable way has been dried and reduced to finely-divided condition and has then been introduced between the fibers in this dry finely-divided form, preferably by dusting the same into the fibers with a suitable dusting ap-
45 paratus as the fibers come from the doffer of a carding-machine. The fibers, with the zinc resinate thus introduced between them, are then subjected to the action of heat, preferably in the presence of moisture and of pressure, the
50 heat serving to fuse the resinate and convert

it into an active binding agent for the fibers and the pressure serving to make the entire operation more effective. Manifestly, however, the pressure can be omitted, if desired, and if employed it may be applied either si-
55 multaneously with the application of the heat or immediately following the heating application.

When treating animal fibers or mixtures containing any considerable proportion of ani-
60 mal fibers, it has been found advantageous to supply the heat for fusing the binder in the presence of moisture, and this is particularly true where a light springy resilient mass of fibers is desired. This is accomplished by
65 placing the fibers, with the finely-divided binder among them, between belts, one or both of which is a moisture-carrying belt, and then passing the whole between heated roll-
70 ers. The heat of the rollers serves to convert the moisture of the belt or belts into steam, which penetrates the mass of the fibers and serves as a vehicle for the introduction of heat. When treating vegetable fibers,
75 such as cotton, the process should be practiced without the introduction of moisture, unless it is desired to unite the fibers in a compact non-resilient mass.

While the binding materials are herein described and claimed as being in a "dry" con-
80 dition, it is not meant thereby to state that said binding materials are in a condition wholly and positively free from all traces of moisture. It is sufficient for the purposes of
85 this invention if the binding material be so far free from moisture as to permit them to be introduced between the fibers in a finely-divided form.

What is claimed is—

1. The process of binding fibers together
90 which consists in introducing a resinate in dry finely-divided form between the fibers, and then converting said resinate into an active binder for the fibers.

2. The process of binding fibers together
95 which consists in introducing a resinate in dry finely-divided form between the fibers, and then subjecting the same to the action of heat, whereby the resinate is converted into an active binding agent for the fibers.

3. The process of binding fibers together which consists in introducing a resinate in dry finely-divided form between the fibers, and then subjecting the same to the action of heat and pressure, whereby the resinate is converted into an active binding agent for the fibers.

4. The process of binding fibers together which consists in introducing a resinate in dry finely-divided form between the fibers, and then subjecting the same to the action of heat in the presence of pressure, whereby the resinate is converted into an active binding agent for the fibers.

5. The process of binding fibers together which consists in introducing an insoluble resinate in a dry finely-divided form between the fibers and then converting said resinate into an active binder for the fibers.

6. The process of binding fibers together which consists in introducing an insoluble resinate in dry finely-divided form between the fibers, and then subjecting said resinate to the action of heat, whereby the same is converted into an active binder for the fibers.

7. The process of binding fibers together which consists in introducing an insoluble resinate in dry finely-divided form between the fibers, and then subjecting said resinate to the action of heat and of pressure, whereby the resinate is converted into an active binding agent for the fibers.

8. The process of binding fibers together which consists in introducing an insoluble resinate in dry finely-divided form between the fibers, and then subjecting said resinate to the action of heat in the presence of pres-

sure, whereby the resinate is converted into an active binding agent for the fibers.

9. The process of binding fibers together which consists in introducing zinc resinate in dry finely-divided form between the fibers, and then converting said resinate into an active binding agent for the fibers.

10. The process of binding fibers together which consists in introducing zinc resinate in a dry finely-divided form, and then treating said zinc resinate with heat, whereby the same is converted into an active binding agent for the fibers.

11. The process of binding fibers together which consists in introducing zinc resinate in a dry finely-divided form between the fibers, and then treating said resinate with heat and with pressure, whereby the same is converted into an active binding agent for the fibers.

12. The process of binding fibers together which consists in introducing zinc resinate in a dry finely-divided form between the fibers, and then treating said resinate with heat in the presence of pressure, whereby the same is converted into an active binding agent for the fibers.

13. A fibrous mass the fibers of which are bound together by a zinc resinate.

14. A fibrous mass the fibers of which are bound together by an insoluble resinate.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GUSTAV GOLDMAN.

Witnesses:

MANNIE A. RICE,
S. T. CAMERON.