

No. 691,954.

Patented Jan. 28, 1902.

G. A. LOWRY.

BALE OF HAY OR OTHER MATERIAL.

(Application filed Jan. 10, 1900.)

(No Model.)

Fig. 1.

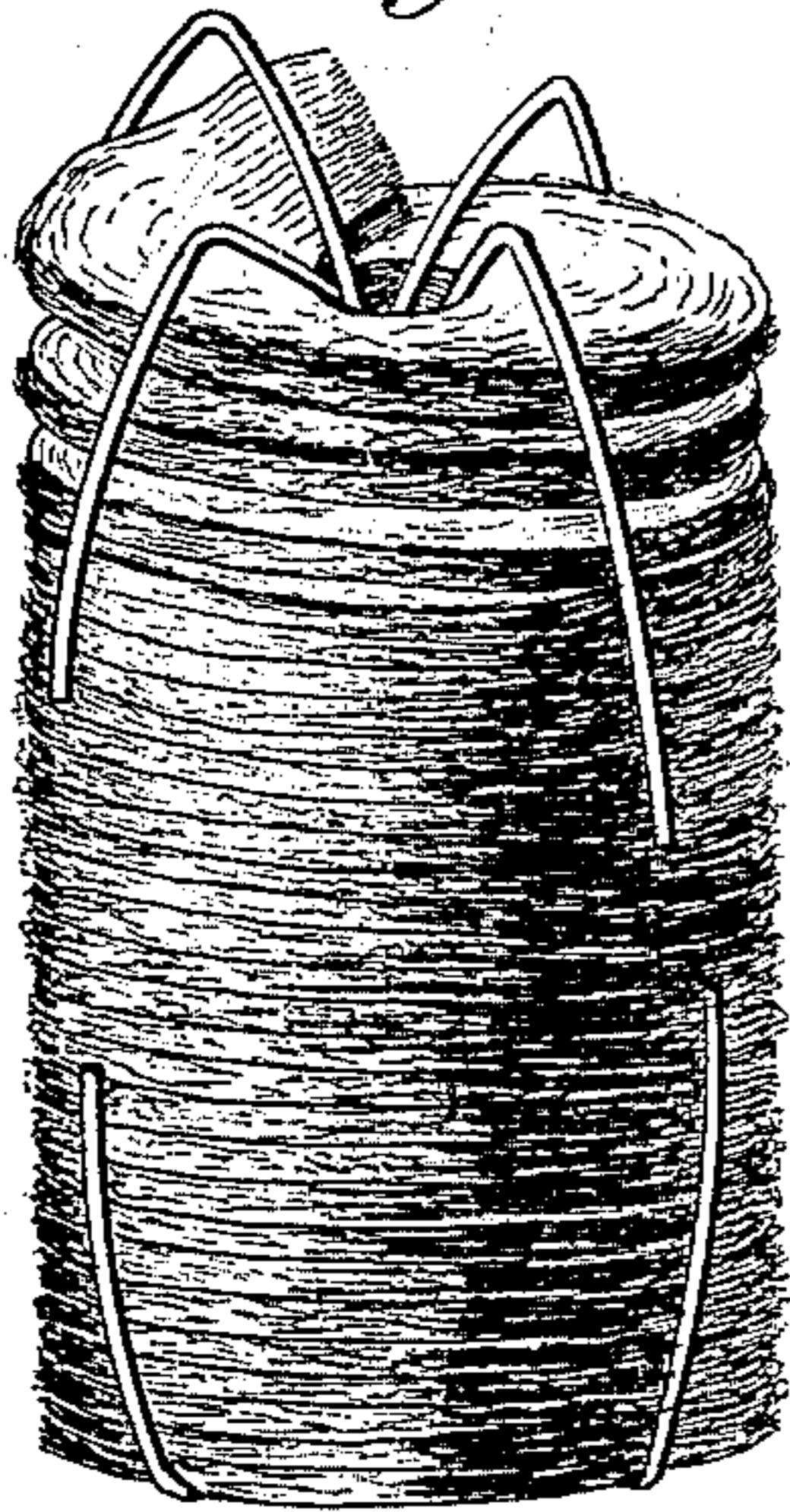
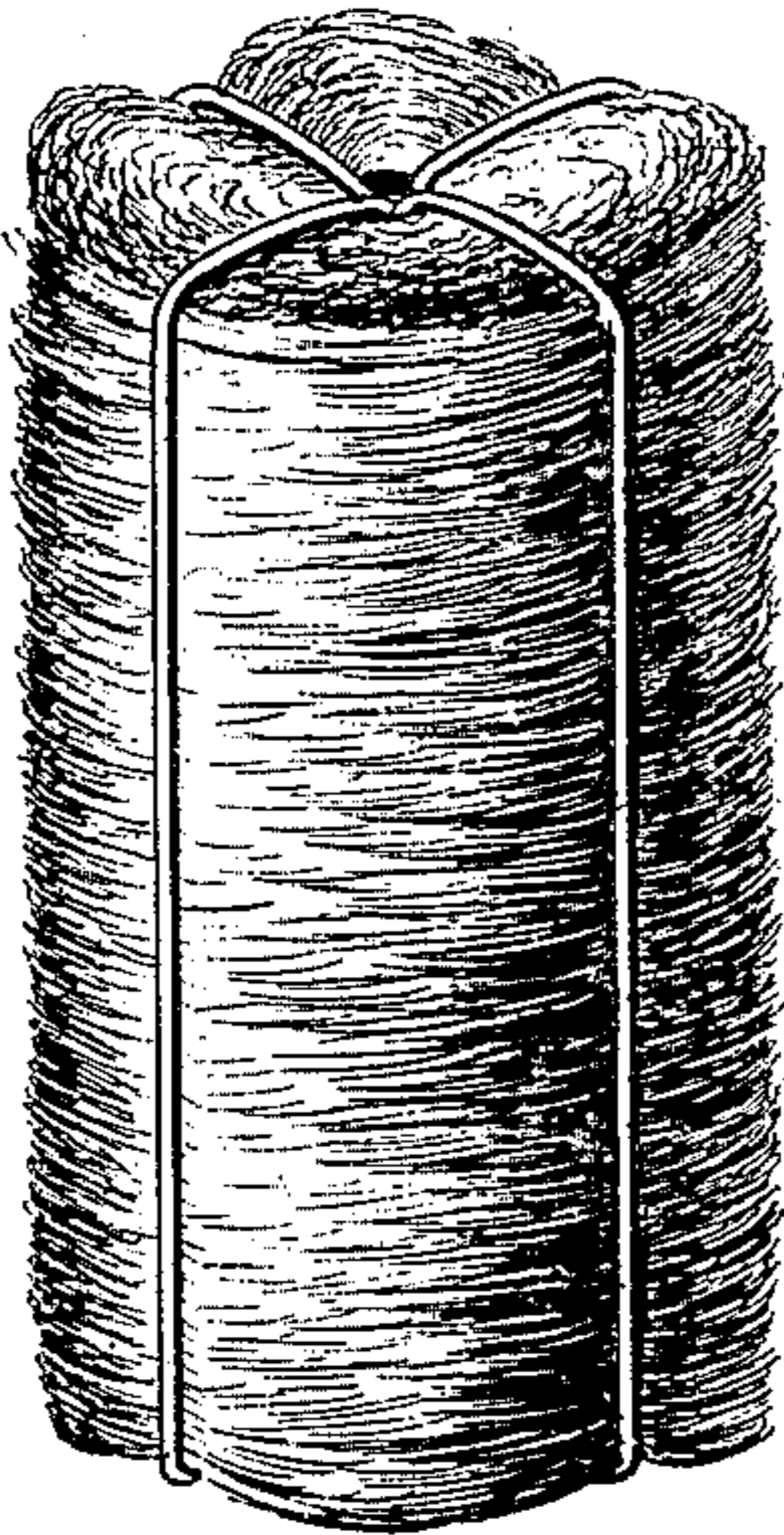


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE PLANTERS COMPRESS COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF WEST VIRGINIA.

BALE OF HAY OR OTHER MATERIAL.

SPECIFICATION forming part of Letters Patent No. 691,954, dated January 28, 1902

Application filed January 10, 1900. Serial No. 975. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LOWRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bales of Hay or other Material, of which the following is a specification.

This invention relates to a new article of manufacture or product comprising a bale or package of material in which the air is expressed from between the fibers or particles and between the layers of such particles and in which such fibers or particles are sterilized.

The invention consists substantially in the construction set forth in the accompanying specification, and more particularly pointed out in the succeeding claims.

In the drawings, Figure 1 illustrates a perspective view of a package of material with the wires loosened thereon. Fig. 2 illustrates a package of material secured and ready for transportation.

For many years it has been endeavored by means of silos and similar contrivances to preserve fodder, hay, and other materials so that they would neither ferment nor be injured by the growth of molds or other bacteria and so that the natural juices in those varieties of materials which contain juices would be preserved for a considerable length of time. It is the aim of the present invention to achieve the same end or produce it in the shape of a package or bale which after it is wired will not require further treatment.

In carrying out this invention it has been found convenient to use an apparatus such as is set forth in Patent No. 645,728, granted March 20, 1900, the application for which was filed July 27, 1899, with certain modifications, such as reducing the number of slots there shown from eight to four or less and increasing the speed of operation from about fourteen revolutions per minute to about eighteen revolutions per minute.

In producing the article it may be generally stated that every strand or particle of the material is subjected to a high degree of pressure and this is effected by operating upon small quantities or layers of such material at a time in which the air is thus

practically expressed, and then superposing these layers one upon the other while still under a high pressure so that the air is excluded from between the layers, and the package or bale is thus built up with practically all the air squeezed therefrom, and, while this squeezing process is being carried on, to subject the particles of material to a high degree of heat, so as to cook the natural juices of such material as contains juices but destroy the bacteria clinging to the material, the degree of heat, of course, being varied according to the difference in the material being acted upon and consequent necessities of the situation, it having been found that with hay from 160° to 225° Fahrenheit is a sufficient heat to effectively perform the function desired, and finally to secure such package while still under compression by suitable fastening devices, such as wire ties, which will serve to retain the compression and practically produce an article or product which has not only been freed from air, but is substantially sealed in that condition.

It is evident that a small amount of material may not only be highly compressed more readily than a large amount of such material, but that the heat may be applied to this small amount of material much more readily and effectively and uniformly than to a mass of material.

When a package or bale is produced by this process, the product is an article which is vastly superior to the ordinary compressed package or bale, because it will not "sweat," and the growth of molds or ferments and the development of bacteria are practically arrested and prevented, so that the package or bale may be preserved uninjured and in its natural state for a long period of time. It has also been found that the heating of certain food-stuffs for animals, of which one instance is hay, improves the quality of the food by bringing out the aroma ordinarily suppressed. It is believed that the heat and rubbing of fibers tends to soften them and also to permit the aroma to come to the surface, and thereby make the fodder more appetizing to the animal.

It has been found that a bale of green

fibrous material—such as hay, fodder, &c.—
or partially-cured fibrous material may be
preserved with its natural juices and put up
in the form of the article just described and
5 may be kept for an extended period without
deterioration. While bales of green fibrous
material constructed in this manner are par-
ticularly improved, yet other materials are
also benefited.

10 It would be of course impossible to state
all the varieties of materials which may be
put up in this style of package or bale; but
among others may be mentioned the follow-
ing: green or partially-cured fodder of vari-
15 ous kinds, including the varieties of grasses,
the many species of clover, alfalfa, vetches,
rapes, milletto, the vines or straws of peas,
beans, and other leguminous plants, the straw
of various grains, and the fodders made from
20 them when cut before maturity, stalks of
corn with or without ears, various forms of
sorghum, kaffir, broom-corn, sugar-cane, the
leaves, pulp, and refuse of beets, turnips,
cabbage, and other vegetables; the refuse left
25 from the canning or treatment for commer-
cial use of green vegetables, matt-sprouts,
and brewers' grains, the hulls and chaff of
rice; cotton-seed, and other grains, and vari-
ous other substances which it may be desired
30 to utilize.

It will be readily understood that many dif-
ferent kinds of apparatus may be used in pro-
ducing such a bale or package without de-
parting from the principle of the invention
and that the form of apparatus described 35
and claimed in my previous patent above re-
ferred to is merely a preferred form for pro-
ducing the article herein referred to.

What I claim, and desire to secure by Let-
ters Patent, is— 40

1. As a new article of manufacture, a pack-
age of fibrous food material composed of a
continuous, compressed series of superposed,
highly-compressed and sterilized layers, and
of a means for retaining the layers in the com- 45
pressed condition and relation, as and for the
purpose set forth.

2. As a new article of manufacture, a pack-
age of green fibrous material composed of
a series of highly-compressed superposed 50
layers, having the natural juices in the fibers
thereof cooked and thereby sterilized and se-
curing devices for retaining the package in a
compressed condition and thus sealing the
same; substantially as and for the purpose 55
set forth.

GEORGE A. LOWRY.

Witnesses:

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