

UNITED STATES PATENT OFFICE.

HENRY J. BIRD, OF HOBOKEN, NEW JERSEY, AND GUSTAV KAFFENBERGER,
OF CLEVELAND, OHIO, ASSIGNORS TO SAID BIRD.

METHOD OF DISINTEGRATING VEGETABLE SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 505,936, dated October 3, 1893.

Application filed October 3, 1892. Serial No. 447,688. (No specimens.)

To all whom it may concern:

Be it known that we, HENRY J. BIRD, of Hoboken, in the county of Hudson and State of New Jersey, and GUSTAV KAFFENBERGER, of Cleveland, in the State of Ohio, citizens of the United States, have invented an Improvement in Methods of Disintegrating Vegetable Substances, of which the following is a specification.

10 The paunches of cattle contain a large amount of vegetable material, some of which, in consequence of the grinding operation of the teeth and of the gastric juices, becomes sufficiently fine and disintegrated for separation and use as paper stock, while other portions of such contents are coarse and require treatment to separate the fiber from the other substances. Where the entire contents have been subjected to the action of heat and an alkali, the finer vegetable fibers are injured or destroyed to a considerable extent so that the quantity of vegetable fiber extracted is reduced.

25 The object of our present invention is to utilize all the vegetable fiber in such paunches and to prevent waste of the same.

In carrying out our invention we take the entire contents of the paunches, both solid and liquid, as delivered from the slaughterhouses, and pass the same through a suitable screening machine in the presence of sufficient water for the finer particles of the fibers to pass through the screen with the liquid, and the coarser particles to be retained by the screen, and which coarser particles are passed into a suitable digester or tank for separate treatment, and the fine particles are allowed to subside from the gastric juices and liquid to any desired extent and they are retained for use in the manufacture of paper, either alone or mixed with other stock in the ordinary manner, as such finer fibers are substantially ready for use after they have been separated from the coarser particles as aforesaid, or the fine fibers may be separated from the liquid by any strainer or wet machine. The coarser particles are treated in any suitable cooking or digesting apparatus along with the gastric juices by the action of steam or other heat and in the presence of an alkali of any desired character, and such coarser

materials are reduced to the proper condition by any suitable beating engine such as ordinarily employed in the preparation of paper stock, and such fibers are washed to any desired extent or bleached, or both, so as to be reduced to the condition for the desired quality of paper.

Usually it is advantageous, after the treatment of the coarser particles in the digester, to mix the finer particles with the coarser particles and use them together in the manufacture of paper, the same being mixed in any suitable tank and conveyed to the beating engine where they are properly washed and further disintegrated to whatever extent is desired according to the quality of paper to be manufactured.

In the manufacture of some kinds of paper it is sometimes desirable to make use of the finer particles that are first separated from the contents of the paunches to form one surface of the paper, and the other fibers, separated from the coarser particles, to form the other surface of the paper, or the fine fibers may be laid between surfacing sheets of paper from the coarser materials, or the reverse, and in so doing any known paper-making machine may be used, and when this is the case the mixing tank before mentioned will be dispensed with.

We do not claim broadly the preparation of vegetable fiber for paper stock by treating the same with the gastric juices, as we are aware of Letters Patent No. 482,537, granted September 13, 1892, to Henry J. Bird.

We claim as our invention—

1. The method herein specified of utilizing the contents of the paunches of slaughtered cattle, consisting in passing the solid and liquid contents of said paunches upon a screen to separate the finer materials from the coarser, retaining such finer vegetable fibers for use as paper stock and treating the coarser materials with an alkali in the presence of gastric juices and sufficient heat for disintegrating such coarser materials, and then washing and beating such materials for the separation of the paper stock, substantially as set forth.

2. The method herein specified of utilizing the contents of the paunches of slaughtered animals, consisting in passing the solid and

liquid contents of such paunches upon a screen to separate the finer materials from the coarser, retaining such finer vegetable fibers for use as paper stock and treating the coarser materials with an alkali in the presence of gastric juices and sufficient heat for disintegrating such coarser materials, then washing and beating such materials for the separation of the paper stock and mixing therewith the previously separated fine vegetable fibers, substantially as set forth.

3. The method herein specified of utilizing the contents of the paunches of slaughtered animals, consisting in passing the solid and liquid contents of such paunches upon a screen to separate the finer materials from the coarser, retaining such finer vegetable fibers for use as paper stock and treating the coarser materials with an alkali in the presence of gastric juices and sufficient heat for

disintegrating such coarser materials, then washing and beating such materials for the separation of the paper stock and bringing together the two qualities of vegetable fibers, so that the finer fibers of the first separation may form one surface of the paper and the other fibers of the second separation may form the other surface of the paper, substantially as set forth.

Signed by us this 20th day of September, 30 1892.

HENRY J. BIRD.

GUSTAV KAFFENBERGER.

Witnesses as to signature of H. J. Bird:

GEO. T. PINCKNEY,

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