

UNITED STATES PATENT OFFICE.

FRANCIS J. McCORMICK, OF DAYTON, OHIO.

PROCESS OF MAKING PAPER-PULP.

SPECIFICATION forming part of Letters Patent No. 335,466, dated February 2, 1886.

Application filed July 16, 1885. Serial No. 171,781. (No specimens.)

To all whom it may concern:

Be it known that I, FRANCIS J. McCORMICK, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and
5 useful Improvements in Processes of Making Paper-Pulp from Cotton-Seed Hulls, of which the following is a specification.

My invention relates to a process of making paper-pulp from the refuse of hulled cotton-
10 seed, which is as follows: I take a charge of the refuse hulls and cook it in a suitable tank or boiler in the presence of soda-ash alone, preferably in the proportion of one hundred of soda-ash to a ton of refuse, and cook the charge
15 from five to six hours, so as to thoroughly reduce the hulls and cut or neutralize the oil. It is then taken out of the cooking-vessel and reduced to pulp of the proper consistency by grinding-disks, which have a series of grad-
20 ually-reducing ribs that tear and pull the fiber apart without cutting it. I have found by experience that the reducing-mill shown in Letters Patent No. 259,974, granted Burns and McCormick, June 20, 1882, is the most suit-
25 able for the purpose. I introduce a small stream of water into the disks to help carry the pulp through and to prevent clogging of the mill. This water runs out with the pulp. The pulp is then treated in the ordinary way.
30 It is calendered or run through a wet-machine and mixed with any other known paper-stock, or used alone, according to the quality desired. Other articles which are the chemical equivalent of soda may be used to reduce the
35 hulls. When leather-board paper is desired, the pulp is not washed; but when straw-board and other grades of paper are desired the pulp should be run through an agitator and

washed, which will sufficiently remove all the alkali or salts left in the pulp. Rolls might
40 be used instead of disks, provided the corrugations are made to tear instead of cut the fiber. The liquor used in cooking the first charge can be used over again by adding a
45 little soda ash when the quantity is used in the proportion above stated.

Heretofore paper-pulp has been made from rags, wood, cotton-seed hulls, and other material without cooking. Paper-pulp has also
50 been made by first cooking the stock with steam, then disintegrating or tearing the fiber apart, and, finally, subjecting it to a bleaching process without the contact therewith of any solid bleaching material. Stock has also been
55 treated by cooking in water with carbonate of soda alone, the temperature being gradually raised to the boiling-point. My invention differs from those above mentioned in that I treat cotton-seed hulls by cooking in an alk-
60 aline solution of soda-ash, that cuts out or neutralizes the oil, the hulls being then reduced to a pulp by means of a grinding mechanism, which tears the fibers apart without cutting.

What I claim as my invention is—

The herein-described process of making
65 paper-pulp, which consists in cooking cotton-seed hulls in a solution of soda-ash, and then grinding the stock, whereby its fibers are torn apart without cutting, substantially as de-
70 scribed.

In testimony whereof I have hereunto set my hand.

FRANCIS J. McCORMICK.

Witnesses:

ROBERT ZAHNER,
Jno. S. ROEBUCK, Jr.