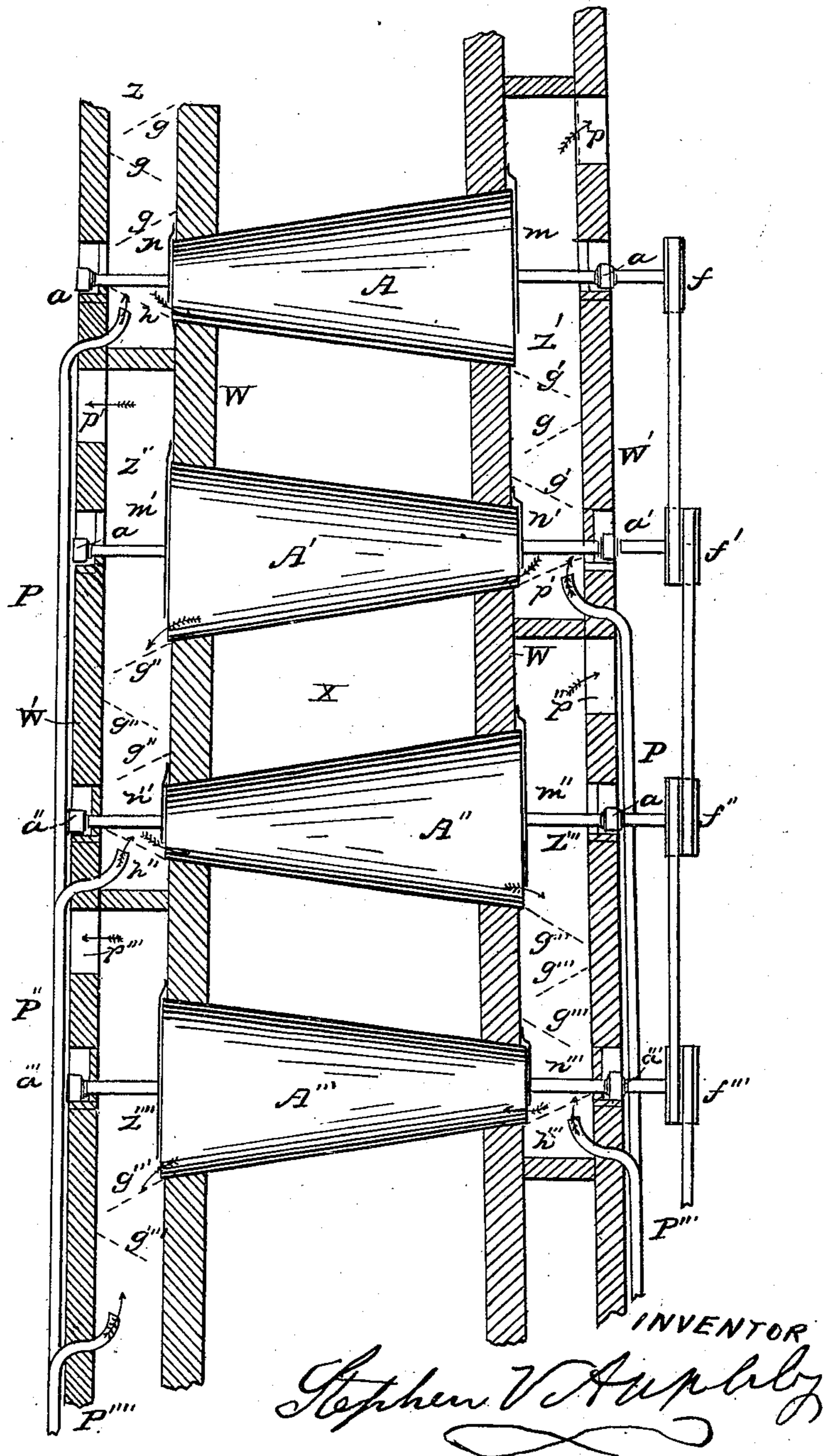


S. V. APPLEBY.

Grain Dryer.

No. 14,588.

Patented April 8, 1856.



UNITED STATES PATENT OFFICE.

STEPHEN V. APPLEBY, OF NEW YORK, N. Y.

MACHINE FOR DRYING WET GRAIN, &c.

Specification of Letters Patent No. 14,588, dated April 8, 1856.

To all whom it may concern:

Be it known that I, STEPHEN V. APPLEBY, of New York, in the county and State of New York, have invented a new and useful
5 Machine for Drying Wet Grain or other Similar Substances Damaged by Water; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings
10 and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement of a series of revolving cylinders, placed one below the other within
15 a heated flue, with the ends of said cylinders projecting through into flues, into which cold air is forced. Wet grain or other similar, by water damaged, substances, are thrown into the top cylinder, pass through
20 this heated cylinder, and fall then into the next cylinder lying underneath the former, being met in its fall from one cylinder to the other by a current of cold air. By this arrangement the wet grain is kept constantly in motion and is acted upon alternately by heat and cold air.

A, A', &c., are cylinders, made tapering so that grain put in at the small end will easily fall through the same. The cylinders
30 are laid one above the other into a flue X with their ends, which are open, projecting a short distance through the side walls W, W, forming the flue X and are supported on the outer walls (W', W',) by bearings (a, a' &c.).

(n, m, n', m', &c.) are plates fastened to the side of the walls (W W) and cover the ends of the cylinders partly up, leaving an opening at the bottom for the grain to fall
40 into and out of the cylinders. These plates are for the purpose of preventing in some measure the free passage of the cold air through the heated cylinders. Near the top in the plates (m, m', &c.) small holes are
45 made to allow the vapors to escape out of the cylinders.

(Z, Z', Z'' &c.) are flues through which the grain falls from one cylinder into the other, and into which the cold air is forced
50 to meet the grain in its fall.

p, p', p'' &c.) are openings near the top of the flues (Z', Z'', Z''', &c.) to allow the

air and vapor to escape. These openings are covered up with wire gauze to prevent any grain being blown out.

(g, g, g, g', g', g', &c.) are gratings fixed into the flues (Z Z' &c.) to increase the distance the grain has to fall between one cylinder and the other, and therefore increase the time for the cold air to act upon the same.

(h, h', h'', &c.) are gratings to lead the grain into the mouth of the cylinder.

(P, P', &c.) are pipes conducting cold air into the flues (Z Z' &c.).

(f, f', f'', &c.) are pulleys attached to the end of the shafts of the cylinders (A, A' &c.) to turn the same around. Instead of making the cylinders in the shape of cones as here represented the same may be made cylindrical and placed in that case on an incline so that the grain will easy fall through.

The operation is as follows. The cylinders being set in motion, the wet grain is thrown into the flue (Z) and passes, guided by the grate (h) into the cylinder (A) where by means of heat produced in the flue (X) some part of its moisture will be absorbed, and the vapor escape out of the cylinder through the hole in the plate (m). The grain then falls out of the cylinder (A) into the flue (Z') upon the gratings (g') and (h'), through which latter it is guided into the cylinder (A') a blast of cold air is thrown into the flue Z' by the pipe (P') meeting the heated grain as it falls from one cylinder into the other, and down the different gratings (g'), cooling thereby the same and carrying off the vapors, which escape together with the air through the opening (p) into the open air. From the cylinder (A'), where more of its moisture is again absorbed, the grain passes or falls through the flue (Z'') into the cylinder (A'') being met on its passage through the flue (Z'') by a fresh stream of cold air, and so on passing from one cylinder into the other, being subjected alternately to heat and cold air until the same is perfectly dried.

What I claim as my invention and desire to secure by Letters Patent is—

The application of revolving cylinders situated in a heated flue, with their ends

projecting into flues, into which cold air is forced, and so arranged that grain, or other similar substances put into the top cylinder will slide through the same and then fall into the next cylinder and so on from one into the other, being in its passage alternately subjected to the action of

heat while in the cylinder, and to the action of cold air while falling from one cylinder into the other for the purpose specified.

STEPHEN V. APPLEBY.

Witnesses:

SAMUEL COTTON,
HENRY E. BOEDER.