



THE PATTERSON FOUNDRY & MACHINE CO.

MANUFACTURERS OF
**SATISFACTORY MACHINERY
FOR THE PROCESS INDUSTRIES**

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PHILADELPHIA 7, PA.

GENERAL OFFICES
AND FACTORIES
EAST LIVERPOOL, OHIO

February 18, 1960.

E. I. DuPont de Nemours & Co.,
Newport, Delaware.

Att'n: Mr. R. O. Wright

Dear Mr. Wright:

In reference to our conversation today concerning your interest in Vacuum Dryers, we are pleased to enclose some literature concerning the very efficient Patterson Con-aform Vacuum Dryer, which we hope you will find of interest.

We have many of these Dryers in service throughout the process industries, all performing in a highly efficient manner, and when your project reaches the discussion stage the writer will look forward to calling on you and furnishing any additional information you may desire.

We would like to mention that we have a No. 36 Con-aform set up in our laboratory at East Liverpool, Ohio, for performing drying tests for our customers, and we would be very glad to arrange tests on your material without any obligation on your part.

Hoping we can be of further service, we are

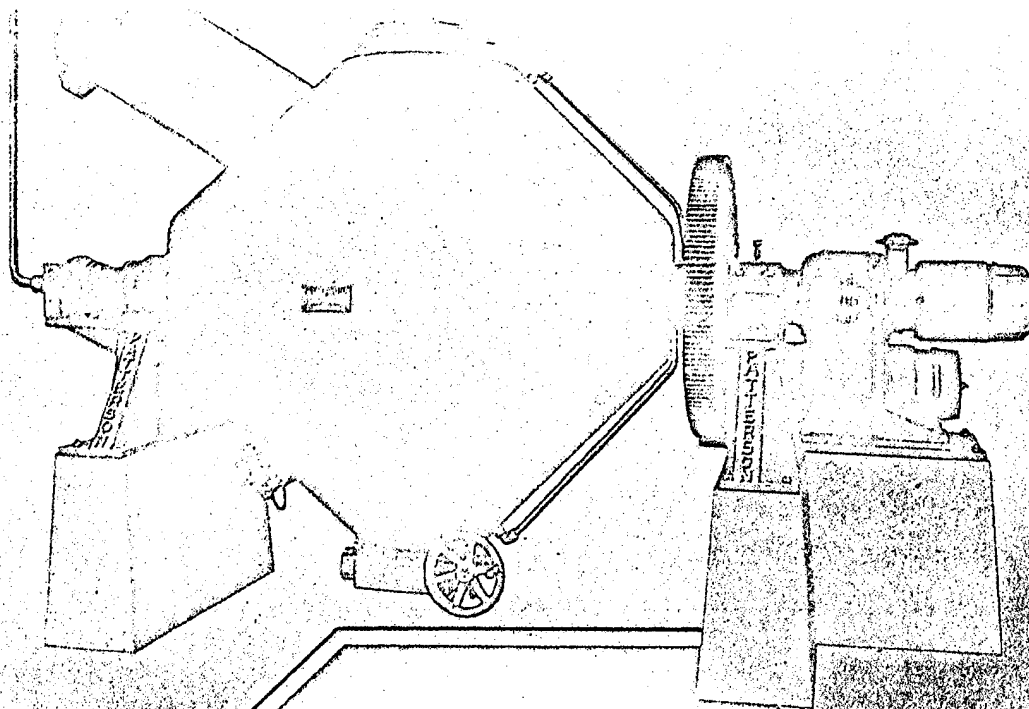
Yours very truly,

The PATTERSON FOUNDRY & MACHINE CO.

W. Harlan Henszey
District Manager.

WHH/mms

N39948



The

PATTERSON

Conaform

VACUUM DRYER

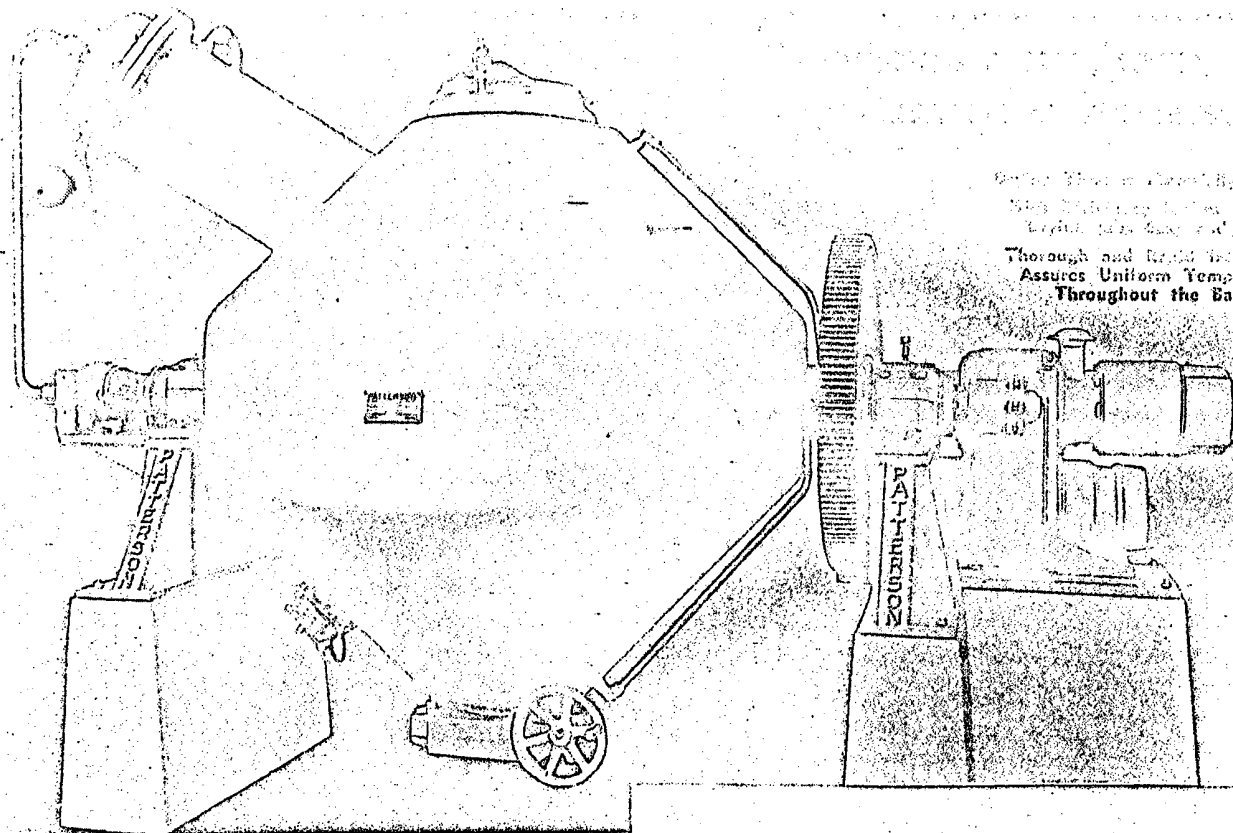
RAPID!

DUSTLESS!

NO CRYSTAL BREAKAGE!

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DUP050054393

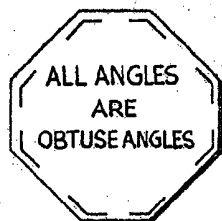


Patented March 1, 1937, by Patterson
 U.S. Pat. No. 2,100,000
 Thorough and Rapid Mixing
 Assures Uniform Temperature
 Throughout the Batch

The PATTERSON

Features and Advantages

A CLEAN INTERIOR-- EASY TO KEEP CLEAN



The interior of the Conaform Dryer consists only of the smooth side walls, through which the heat is transferred to the product. The thorough mixing and blending action is obtained by the unique shape of the drying compartment. Intersections of cylinder and truncated cones are obtuse angles, so no material is trapped. There are

no internal scrapers, plows, scoops or vanes to trap and hold material while it cakes, or prevents uniform warming and drying.

The Conaform may be easily cleaned for quick change of products or of colors, with minimum process hold-up. It is practical to use one dryer for many different reagent-grade chemicals of highest quality.

DUSTLESS OPERATION

The Conaform Dryer, hermetically sealed, is perfectly dust-free in operation. No material, however fine, is lost to contaminate the area or other material in process, or to create a hazardous working condition. Chemicals or drugs of highest purity are dried without contamination from air-borne dust. A battery of dryers may be used on different materials without cross-contamination. The Conaform Dryer can be placed in the production line anywhere.

TIGHT VACUUM SEAL

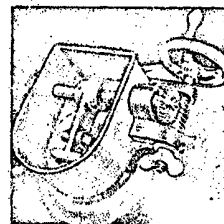
There is only one stuffing box — at the entrance of the vapor pipe. A high vacuum is easily maintained without an oversize vacuum pump, as excess capacity is not required to provide for leakage. Other dryers of the stationary cylinder type with horizontal-shaft agitator require two stuffing boxes, or a bearing inside of the batch.

All bearings of the Conaform are external to the drying compartment, and there is no possibility of contamination from the lubricant.

VACUUM-TIGHT DUSTLESS DISCHARGE VALVE

To maintain highest product purity and dust-free operation, the Conaform Dryer is fitted with a specially designed vacuum-tight discharge valve. The valve is a smooth plate actuated with a worm drive, so that little effort is required to firmly seat the valve. The mechanical seating arrangement applies pressure to the exact center of the closure plate, distributing pressure evenly to all points of contact with the valve seat.

The valve opens fully, for unobstructed flow, similar to a gate valve, but has no grooves or channels to trap material. The rim around the valve provides means for attaching a sleeve, so there is no loss of product and no contamination during discharge.



(UNITED STATES AND FOREIGN PATENTS PENDING)

DUP050054394

THE Conaform DRYING PRINCIPLE

Drying operations are based on the principle that water or other volatile material moves from a zone of high vapor pressure to a zone of lower pressure. This is attained either by warming the material to be dried — to raise the vapor pressure of the absorbed or free liquid, or by decreasing the vapor pressure of the gas by vacuum or by sweeping it away with an air current. Thus, it is apparent that the essential conditions for effective drying are . . . **EFFICIENT AND UNIFORM HEAT TRANSFER THROUGHOUT THE BATCH . . . AND RAPID REMOVAL OF THE VAPOR.**

These essential factors are provided in the Patterson Conaform Dryer. It is completely jacketed, and the heat transfer fluid may be circulated hot water, steam or vapor. Its unique conical shape assures

direct contact between the material and the heated surface, so that heat is transferred rapidly by conduction; the double temperature gradient at both surfaces of a tray dryer is eliminated.

As the Conaform rotates, the rapid and thorough intermixing of the entire batch brings every particle in positive contact, time and again, with the heated metal for more rapid heat conduction. This permits high speed drying without raising the jacket temperature to the danger-point of the material being processed.

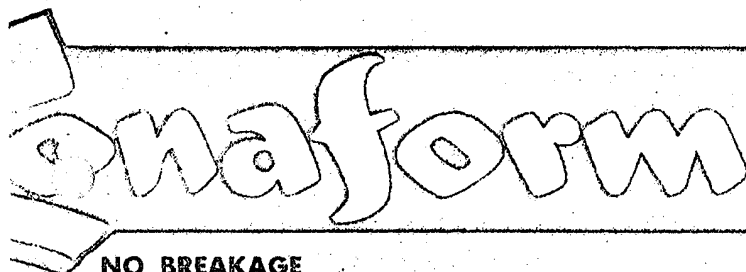
The most important effect of this thorough blending and interfolding is maintaining uniform temperature throughout the batch. This prevents recondensation because there are no cold spots, and it contributes to the speed of drying and elimination of caking.



TRAY DRYER

SUPERIOR TO TRAY DRYING

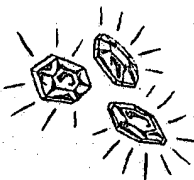
Conaform vacuum drying is superior in many ways to tray drying. In tray drying, the circulating air warms the material and removes moisture from the surface layer only; all the vapor does not move to the surface but moves to the place of lowest vapor pressure — often the center of the batch, because the heat has not penetrated there. Here it is condensed or is reabsorbed to cause caking. Heat conduction through a porous bed of material is always slow, and transfer by radiation is notoriously inefficient at the low temperature associated with vacuum drying. The Conaform principle of drying corrects these deficiencies.



VACUUM DRYER

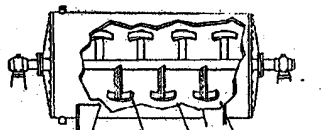
NO BREAKAGE OR ABRASION OF CRYSTALS

The Conaform Dryer is gentle in action. The entire absence of moving parts within the Conaform insures against disintegration of crystals or abrasion of sharp edges or corners. This is of special advantage where a dust-free product is desired.



NO CAKING--NO CONTAMINATION

As the Conaform rotates, and moisture is drawn off by the vacuum, the particles constantly change their position. There is no caking, no contamination in the Conaform, as in dryers of other types. Crystals of plate or elongated shape do not pack but take random orientation, leaving open space for escape of vapor.



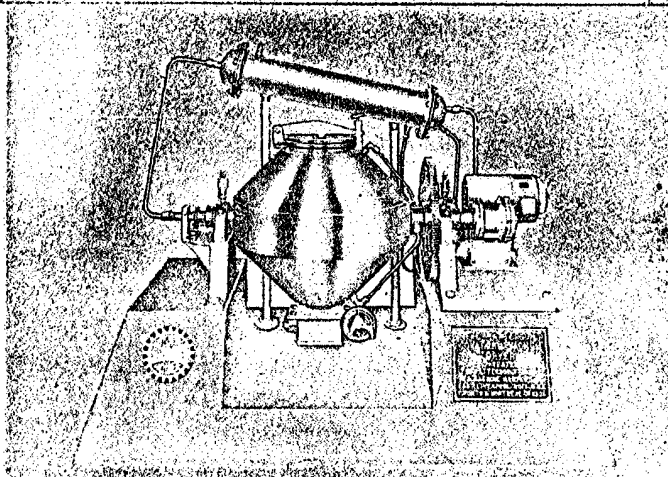
CAKING BREAKAGE WEAR
AGITATED, STATIONARY
DRUM VACUUM DRYER

FOR SOLVENT RECOVERY

The Patterson Conaform Dryer is particularly useful for drying materials of high value. Valuable solvents or liquids extracted from the materials being dried may be recovered by the use of condensers. Auxiliary equipment, such as condensers, decanters, etc., can be supplied with any size Conaform Dryer.

MAY BE USED WITHOUT CONDENSER

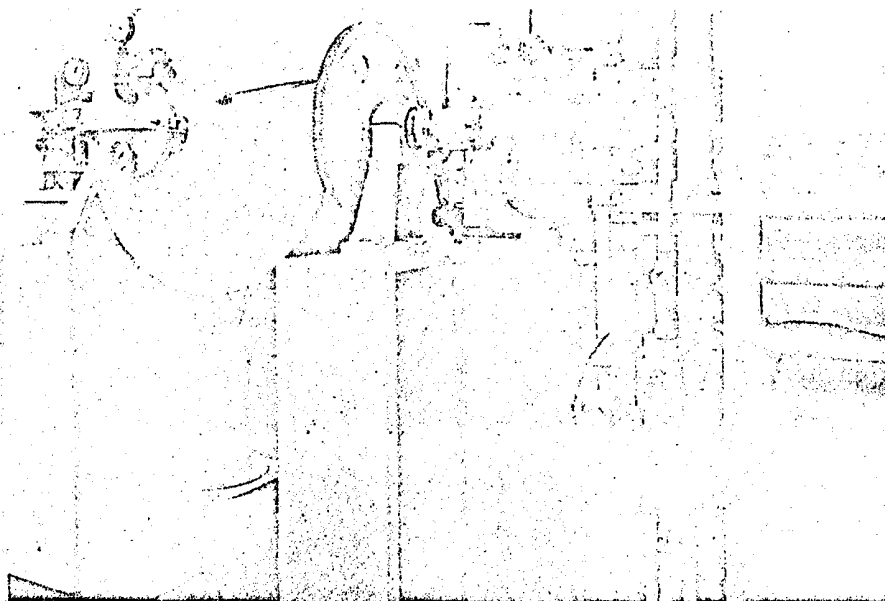
The Conaform Dryer is so designed that it may be used in the drying of many materials without condensers or other auxiliary equipment.



TESTS CUSTOMERS' SAMPLES

This Patterson Conaform pilot plant unit is installed in our Experimental and Service Laboratory . . . where it is used for testing customers' materials. Expert engineering talent is available for studying the most complex drying problems, and for consultation and advice.

We urge you to use this combined service . . . to send or bring your samples for trial runs . . . and we invite you to be present during the test. You can then be sure to make the proper selection for your particular drying problem.



OPERATING CAPACITIES

Conaform Dryer

In Pilot Laboratory of one of the leading pharmaceutical houses where a tremendous amount of scientific research is conducted to produce many new wonder drugs.

The Patterson Conaform Vacuum Dryer plays an important part in such research and development work, and is also used in the later stage of commercial production in the manufacture of high value chemicals, pharmaceuticals, etc.

THE PATTERSON *Conaform* VACUUM DRYER

Operating Capacities from 1 Cu. Ft. to 234 Cu. Ft.

NUMBER	MAXIMUM OPERATING CAPACITY (CU. FT.)	DUSTLESS CHARGING DOOR (DIAMETER)	DUSTLESS DISCHARGE VALVE (DIAMETER)	FLOOR SPACE (APPROX.)	SWING DIAMETER OF DRYER
15	1.0	8"	6"	2'3" x 4'0"	2'2"
36	2.5	8"	6"	3'0" x 5'6"	3'0"
72	5.0	8"	6"	3'8" x 6'0"	3'8"
124	8.7	8"	6"	4'4" x 7'0"	4'4"
196	13.72	8"	8"	5'0" x 7'6"	4'10"
290	20.3	16"	8"	5'6" x 8'0"	5'4"
415	29.0	16"	8"	6'0" x 9'0"	6'0"
570	40.0	16"	10"	6'6" x 10'0"	6'6"
990	69.3	16"	10"	7'8" x 11'6"	7'8"
1890	132.0	16"	12"	9'6" x 12'9"	9'6"
2340	163.8	16"	12"	10'6" x 13'6"	9'10"
3340	233.8	16"	12"	12'6" x 18'0"	14'0"

* Height Required: Figures specified represent swing diameter of dryer. To calculate exact height required, add discharge clearance desired, also necessary clearance above dryer for charging. If dryer is charged from floor above, charging clearance need not be added.

Horsepower requirements are directly proportional to the density of the product and the desired R.P.M. of the Dryer. R.P.M. depends upon the characteristics of the material being processed.

Patterson Conaform Dryers can be supplied in plain steel, stainless steel or other weldable metals, with interior finish according to Patterson standards, or special finish as desired by customer.



The Patterson Foundry and Machine Company

East Liverpool, Ohio, U. S. A.

NEW YORK, BOSTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, CLEVELAND, DETROIT, CINCINNATI, ATLANTA, CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited

Toronto, Canada
MONTREAL