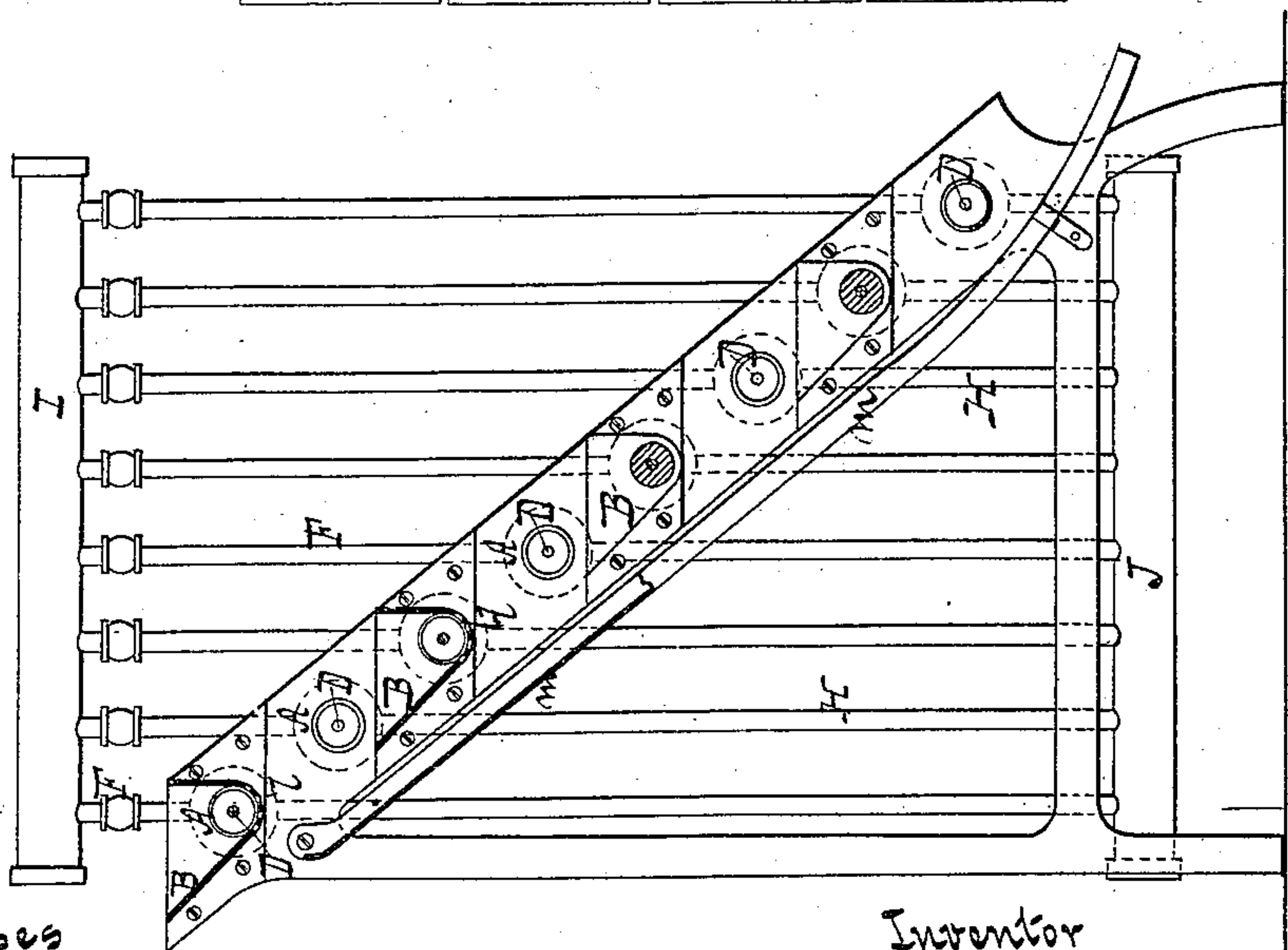
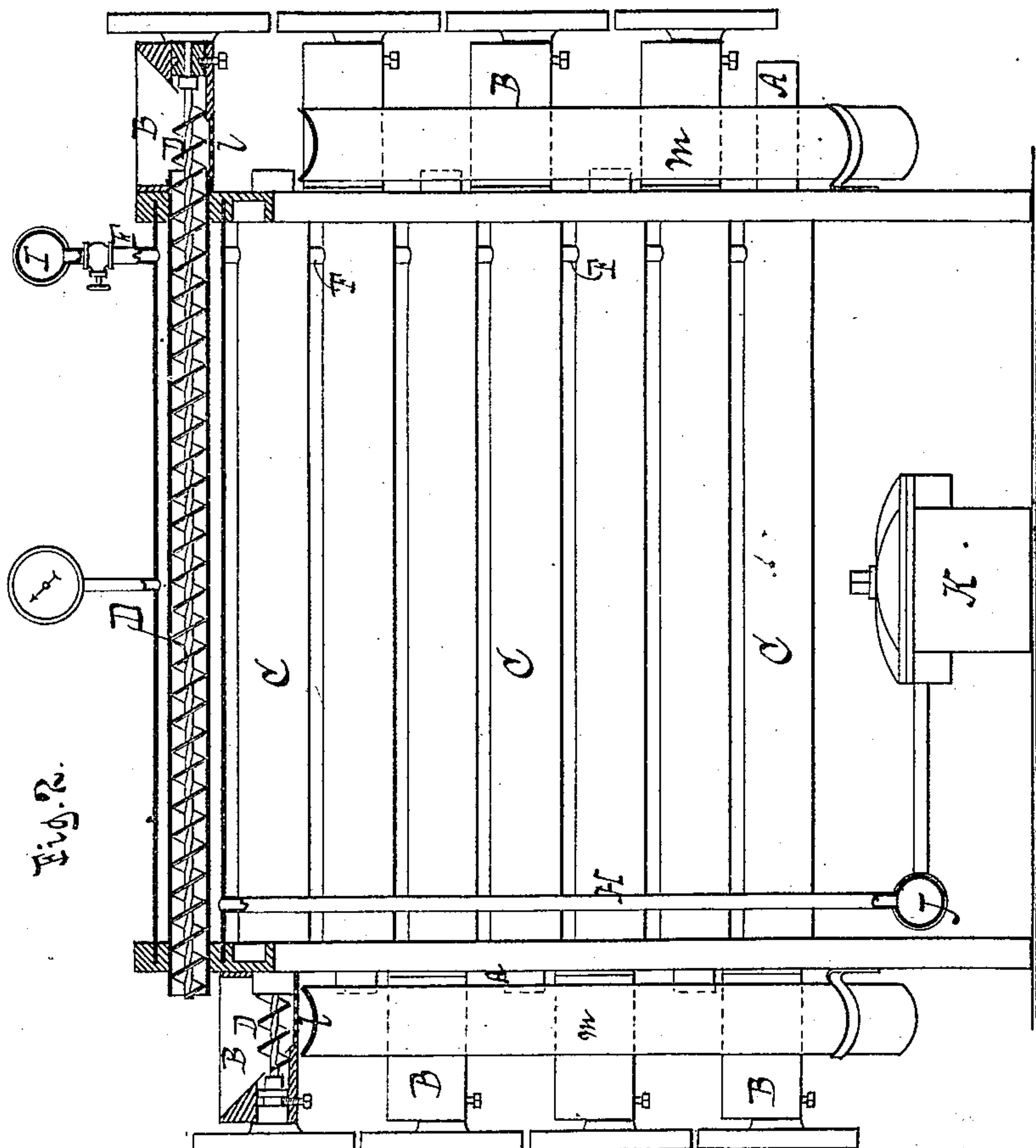


(No Model.)

G. B. BOOMER.

Apparatus for Drying Oleaginous and other Substances.
No. 238,641. Patented March 8, 1881.

Patented March 8, 1881.



Witnesses
Otto Lupeland
William Miller

Inventor
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his attys

UNITED STATES PATENT OFFICE.

GEORGE B. BOOMER, OF NEW YORK, N. Y.

APPARATUS FOR DRYING OLEAGINOUS AND OTHER SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 238,641, dated March 8, 1881.

Application filed December 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. BOOMER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Apparatus for Drying Oleaginous and other Substances, of which the following is a specification.

This invention relates to apparatus for evaporating the moisture from fertilizers, such as refuse animal matter and other solid substances; and my invention consists of improvements in that particular class of machines which are composed of a series of independent pipes open at both ends, in which are arranged spiral feed-screws connecting at their ends alternately with receiving-hoppers, said pipes being each surrounded by a steam-heating jacket for heating the inclosed pipes.

In such machines as heretofore constructed the oil, water, and fine impurities extracted from the fat within each of the pipes have been transferred from one pipe to the other with the material being acted upon; and it is the object of my invention to provide means for the escape of such extracted oil or water and fine impurities from each of the respective pipes and its collection in suitable receptacles.

The invention is fully illustrated in the accompanying drawings, and the improvements will be fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 represents an end elevation, partly in section, of a drying apparatus embodying my invention, and Fig. 2 represents a similar side view of the same.

Similar letters indicate corresponding parts.

The letter A designates the drying or rendering pipes; B, the reservoirs; C, the heating-jackets, and D the feed-screws.

The pipes A are independent of each other, and are placed one over the other in approximately horizontal positions upon a suitable frame-work, the same being left open at both ends, while the reservoirs B are connected thereto at one end. The location of these reservoirs B is alternately at the opposite ends of the pipes A, and the reservoir of one pipe is below the free or discharge end of the pipe next above it, as clearly shown in Fig. 2.

The heating-jackets C are formed by tubes

surrounding the pipes A, the same terminating a short distance within the ends of the pipes, and being made steam-tight at their opposite ends. Each of these jackets C is furnished with a steam-supply pipe, F, at one end and a steam-escape pipe, H, at the opposite end, the supply-pipes emanating from a drum, I, connecting with a steam-source, while the escape-pipes lead into a drum, J, connecting with a steam-trap, K.

The feed-screws D extend through the reservoirs B into and through the pipes A, and the openings through which the screws pass into the reservoirs are made of such diameter as to allow the removal of the screws, as when it is desired to clean the pipes. The several feed-screws D are geared with a suitable driving medium to revolve in appropriate directions.

In carrying out my invention steam is admitted to the heating-jackets C, the feed-screws D are set in motion, and the substance to be treated is supplied to the reservoir B of the uppermost drying-pipe A, through which latter it is forced by the feed-screw therein. As the material emerges from the upper pipe it falls into the reservoir B of the next lower pipe, and is forced through this pipe into the reservoir of the third pipe, and so on until it escapes from the lowermost drying-pipe, at which point it is caught in a suitable vessel. In this manner the material is subjected to the action of the heat in the steam-jackets, and in this manner the oleaginous and watery parts, as well as the other fine impurities, are thoroughly separated from the cellular tissues. In order to prevent this oily or oleaginous matter, as well as the finer impurities, from passing successively from one pipe to the other along with the material being acted upon, I provide the construction and arrangement of devices which I will now describe.

The reservoirs B are each provided with a perforated bottom, as indicated at *l*, and beneath these perforated bottoms, at opposite ends of the apparatus, are arranged the conveyer chutes or conductors *m*, which extend in inclined planes below said reservoirs, and are connected at their lower ends with suitable receptacles. (Not here shown.) By this arrangement the oily or oleaginous parts of the sub-

stance, as well as fine impurities, are caused to pass through the perforations *l* in the reservoirs B, and will be received by the conductors or chutes *m* and conveyed to and collected in the receiving-receptacles provided for the same.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a drying and evaporating apparatus consisting of a series of pipes containing feed-screws and surrounded by a steam-heating jacket, the combination therewith of the reservoirs connected alternately with opposite ends of the pipes and having perforated bottoms, with conductors or chutes arranged below said perforated reservoirs, substantially as and for the purpose described.

2. In a drying apparatus, a series of pipes containing feed-screws and arranged one above the other, and provided with surrounding steam-heating jackets, in combination with the reservoirs B, connected with the pipes alternately at opposite ends, and having perforated bottoms *l*, and the conductors or chutes *m*, extending in inclined planes below the perforated reservoirs, all substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GEO. B. BOOMER. [L. S.]

Witnesses:

W. HAUFF,

CHAS. WAHLERS.