

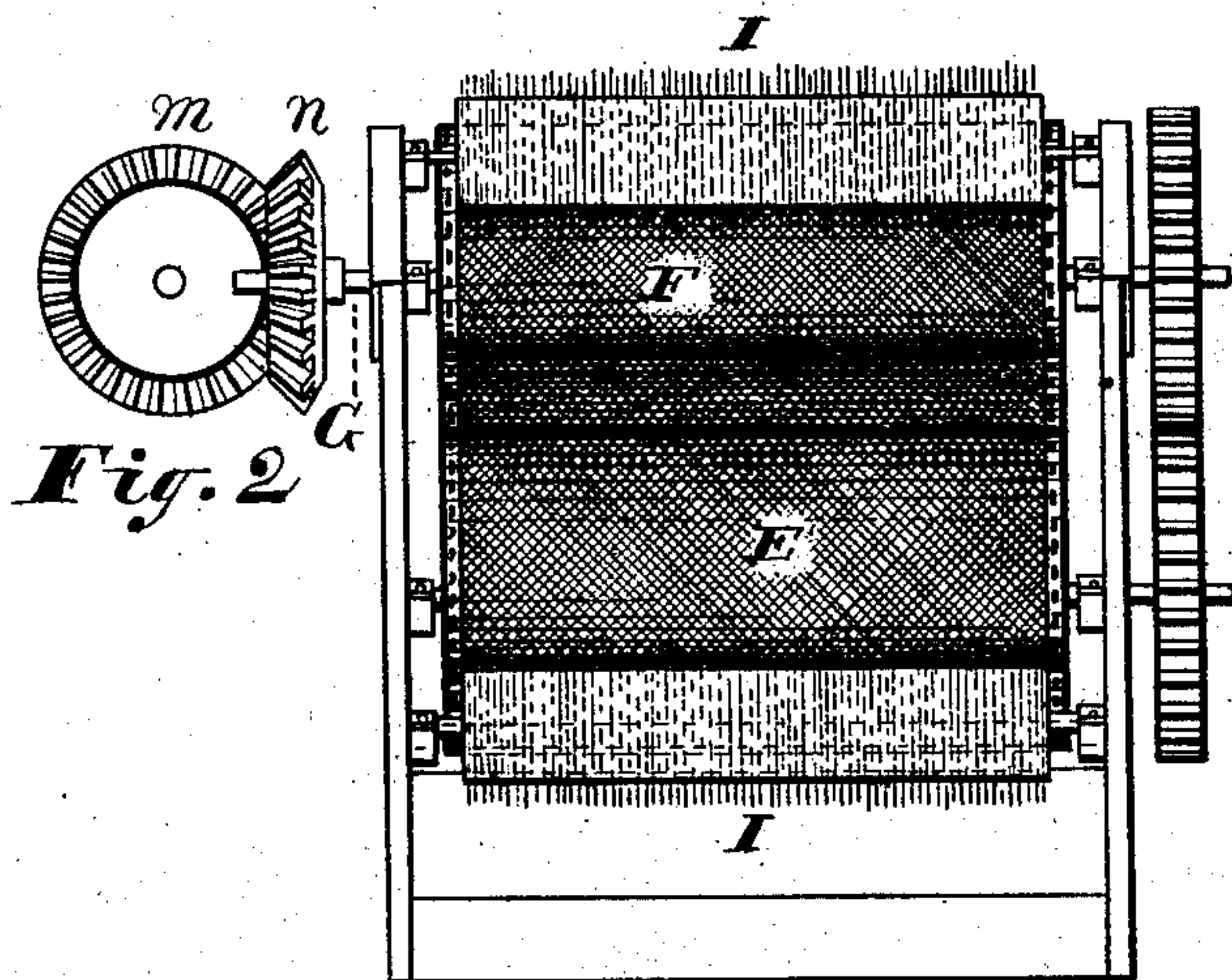
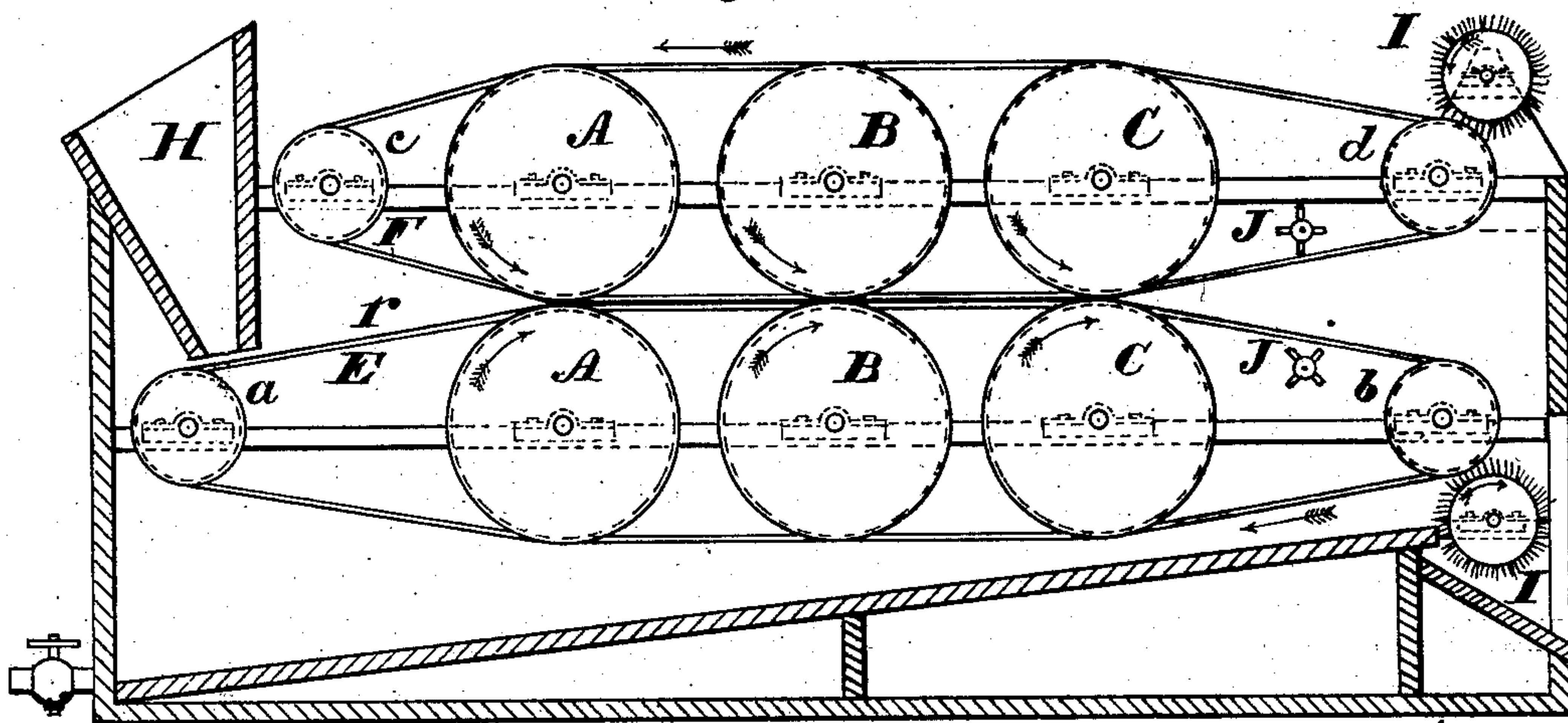
(No Model.)

O. F. BOOMER.  
ROLLER PRESS.

No. 248,083.

Patented Oct. 11, 1881.

*Fig. 1.*



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# UNITED STATES PATENT OFFICE.

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## ROLLER-PRESS.

SPECIFICATION forming part of Letters Patent No. 248,083, dated October 11, 1881.

Application filed February 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR FINN BOOMER, of Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Roller-Presses, of which the following is a specification.

This invention comprises certain novel combinations of parts whereby the compressive action of coincident rollers is rendered efficient for the rapid and effective separation of liquid materials from the scrap, matrix, or cellular tissue in which the said liquid material may exist, the said invention being capable of advantageous use for the separation of cider and similar liquors from pomace, for expressing oils from oil-producing substances, and for other like purposes.

Figure 1 is a vertical longitudinal sectional view of an apparatus included in my said invention; and Fig. 2 is an end view of the same, a portion of the frame being removed in order to better display the arrangements of the parts.

Three pairs of rollers, A, B, and C, are placed in such relation with each other that the line of junction of the rollers of each pair will be in the same plane as the line of junction of the rollers of each of the other pairs, as represented in Fig. 1. In certain exceptional cases the number of pairs of rollers may be reduced to two, and in other cases the number of pairs of rollers may be increased, the object being to insure a sufficient continuity of pressure to exert the required compressing action upon the material, according as the same requires greater or less pressure to expel the liquid constituents therefrom. The said rollers are placed horizontal, with the rollers of each pair placed one above the other, all as represented in Fig. 1, the rollers being provided with suitable journals, which work in suitable bearings provided in the frame of the machine. The diameter of these rollers may be greater or less, according to the size of the machine required and the character of the work; but the diameter should be much greater than that of the "end rollers," so termed, (indicated by the reference-letters *a b c d*), which said end rollers work in bearings provided, like those of the other rollers, in the frame of the apparatus.

It will be observed that the lower rollers of

the several vertical pairs constitute what may be termed a "lower tier" of rollers, and in like manner the upper rollers of the several pairs constitute an "upper tier" of rollers, the lower tier having the two end rollers *a b*, and the upper tier having the end rollers *c d*. Stretched over the lower tier aforesaid, including the end rollers *a b*, is an endless apron, E; and in like manner stretched over the upper tier of rollers, including the end rollers *c d* thereof, is another endless apron, F. Motion being given to any one of the rollers—as, for example, by means of a shaft, G, and gears *m n*—all the other rollers of the same horizontal tier would receive a rotary motion through the agency of the endless apron stretched thereon, while the said endless apron, being in contact with that stretched around the other horizontal tier of rollers, would communicate motion to the said second endless apron, and consequently to the other tiers of rollers.

It will also be observed that, inasmuch as the end rollers are smaller than the others, the endless aprons diverge from each other at the ends of the apparatus, as clearly represented in Fig. 1, the direction of rotation of the rollers being that indicated by the arrows in Fig. 1. The endless aprons are in like manner rotated, so that any material placed upon the lower apron, E, at the end *r* thereof, would be carried between the converging adjacent ends of the aprons E F, and then in succession between the successive pairs of the rollers, and there subjected to successive compressions to expel the liquid constituents of the material thus acted upon from the rollers. Until passing out from between the lowest or rearmost pair of the rollers, the divergence of the aprons at the said rearmost ends of the apparatus permits the loosening of the compressed material, practically divested of its liquid constituents, so that it may be readily detached from the apron as it is carried around at the end thereof. This effective action of the rollers upon the material is insured by the fact that the material itself is grasped, so to speak, by the converging portions of the two aprons E F, as the latter pass in succession between the rollers, and thereby gripe or clasp between them the material in such manner that it will not be continually



pushed away from the rollers by the rotation thereof.

In order that the material may be properly fed upon the parts *r* of the apron E, as hereinbefore explained, the end roller *c* is placed nearer the upper roller A than the corresponding end roller *a* is placed with reference to the lower roller A, to afford space above the end roller *a* for the lower end of a hopper, H, so that, the said lower end of the hopper H being brought down to the requisite distance from the part *r* of the apron E, the material passes from the hopper to the said part of the said apron, and is carried forward and inward by the movement of the said apron, so that it is caught and pressed by the coincident action of the adjacent part of the apron F, and thereby gripped and carried between the rollers and subjected to their successive action, as hereinbefore explained.

Provided at the rearmost end of each of the aprons E F is a wire brush or scraper, I, rotated by any suitable means; and placed within each of the belts E F, at the rearmost ends thereof, is a rotating beater, J, also revolved by any suitable means, and the radial arms of which strike at slight intervals of time against the inner portions of the aprons, the brushes or scrapers I tending to clear the surfaces of the aprons from any adhering scrap, pomace, or refuse as the aprons pass around their rearmost end pulleys, while the beaters J are designed to loosen the scrap, pomace, or refuse from the aprons before they are brought to turn around the said end pulleys.

By the means described the material to be

compressed or subjected to pressure is effectually fed to the action of the rollers, and effectually held in such relation with the rollers as to have the liquid constituents effectually and rapidly removed therefrom, effective provision being also made for the discharge from the apparatus of the waste product—that is to say, of the refuse, pomace, or scraps.

What I claim as my invention is—

1. The combination, in a roller-press, of two or more pairs of compressing-rollers, A B, &c., two endless aprons, E F, two rollers, *a c*, of smaller diameter, placed at the receiving end of the apparatus, to hold the aprons in long and substantially plane slopes, converging to the space between the first pair of the larger rollers, and a hopper, H, placed to deposit upon the adjacent slope of the lowermost apron the material to be pressed, substantially as and for the purpose herein set forth.

2. The combination of two or more pairs of compressing-rollers, A B, &c., two endless aprons, E F, two rollers, *b d*, of smaller diameter, to hold the aprons in sloping diverging planes at the delivery end of the apparatus, and two beaters, J, interposed between the smaller rollers and the adjacent compressing-rollers and within the aprons, for the purpose of freely dislodging and delivering the pressed material from the apparatus, substantially as and for the purpose herein set forth.

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Witnesses:

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