

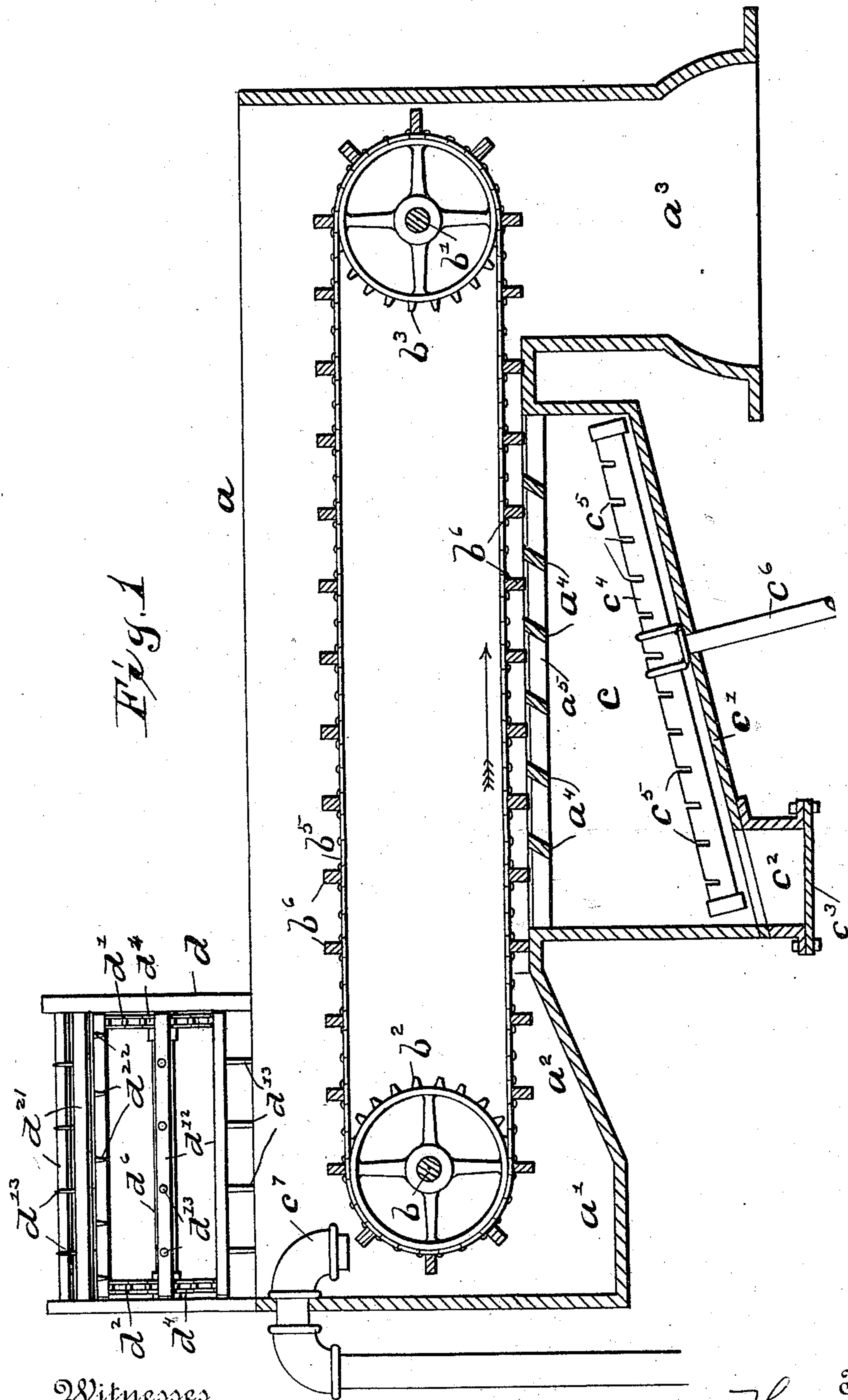
(No Model.)

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T. C. CADWGAN.  
FEEDING DEVICE FOR PAPER STOCK.

No. 561,484.

Patented June 2, 1896.



Witnesses

J. M. Gridley  
Chas. J. Welch

By his Attorney

Inventor

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Thomas C. Cadogan

213 Paul A. H. H.

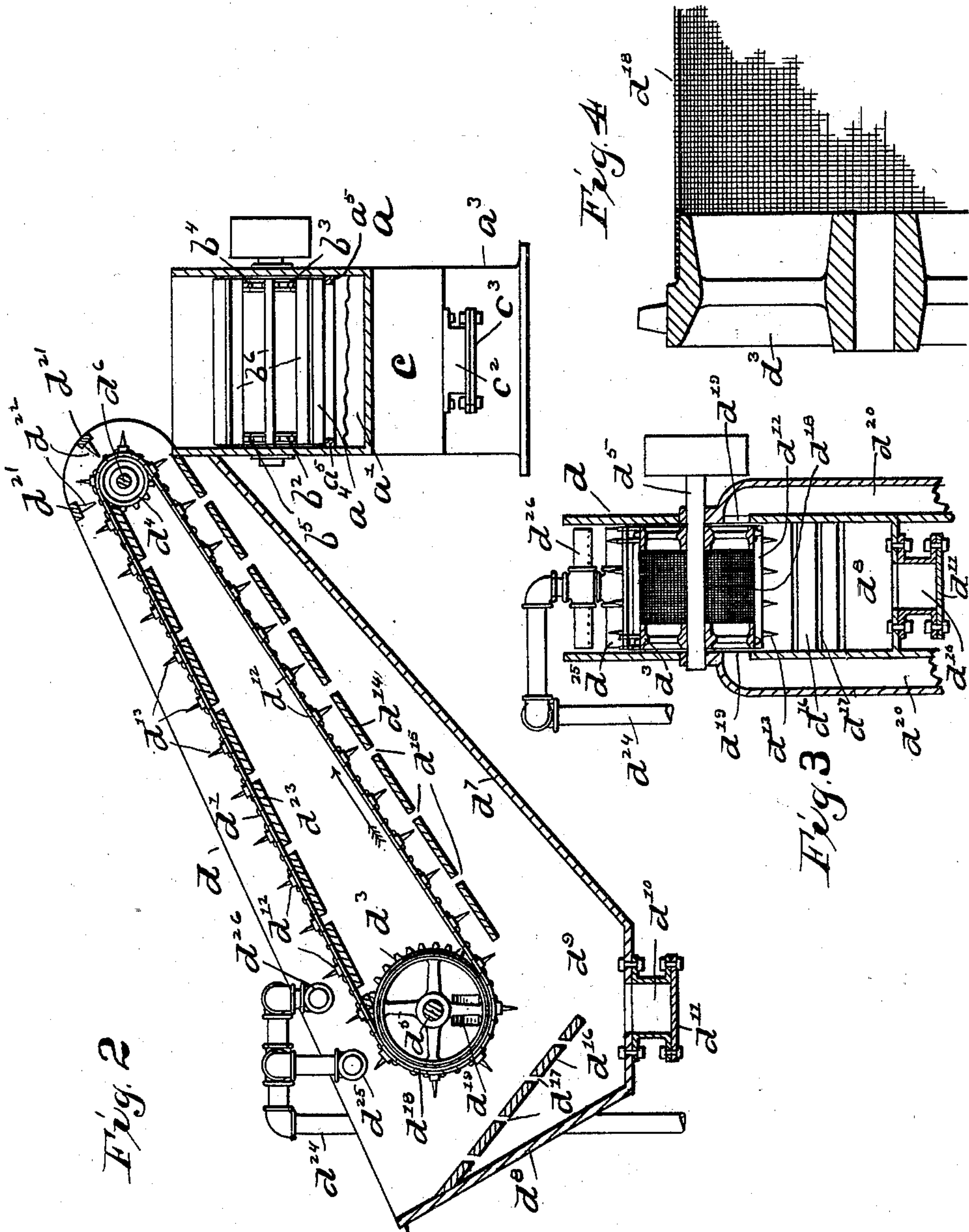
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# UNITED STATES PATENT OFFICE.

THOMAS C. CADWGAN, OF ANDERSON, INDIANA, ASSIGNOR OF ONE-HALF  
TO THE O. S. KELLY COMPANY, OF SPRINGFIELD, OHIO.

## FEEDING DEVICE FOR PAPER-STOCK.

SPECIFICATION forming part of Letters Patent No. 561,484, dated June 2, 1896.

Application filed January 9, 1896. Serial No. 574,841. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS C. CADWGAN, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Feeding Devices for Paper-Stock, of which the following is a specification.

My invention relates to improvements in devices for handling and feeding paper-stock; and it is especially adapted for use with machines such as illustrated in my Letters Patent No. 539,412, though it may be used with any similar device or devices employed for the same purpose.

The object of my invention is to provide a feeding device which shall break up the masses of stock and feed the same in a regular and uniform manner and at the same time permit the separation therefrom of foreign substances of a character that would injure the washing or disintegrating machinery if fed thereto. I attain this object by the constructions shown in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of my feeding device with the elevating attachment connected thereto. Fig. 2 is a transverse sectional view of the feeding devices, which section also passes longitudinally through the elevating-carrier. Fig. 3 is a transverse sectional view of a portion of the elevating-carrier. Fig. 4 is a detail of the same on a larger scale.

Like parts are represented by similar letters of reference in the several views.

In the said drawings, *a* represents a longitudinal box or casing, which is preferably rectangular in cross-section. It is provided at the front or receiving end with a pocket *a'* in the bottom thereof, said pocket having an inclined chute or floor *a<sup>2</sup>*, which leads therefrom in the direction in which the stock is moved, as hereinafter more fully set forth. The opposite or discharge end of this casing *a* is formed with a downwardly-projecting conduit or flume *a<sup>3</sup>*, which is adapted to fit on and connect with the machine into which the stock is to be fed, so that said flume or conduit will connect with the feeding-opening of said machine. The main portion of the bot-

tom of the casing *a*, or that portion which lies between the pocket *a'* and the conduit *a<sup>3</sup>*, is formed open, but provided at intervals with slats or cross-bars *a<sup>4</sup>*, which extend from side to side of the casing and are preferably inclined in the direction in which the stock moves.

At the respective ends of the casing and within the same there is journaled a transverse shaft *b* and *b'*, each of which carries a pair of sprocket-wheels *b<sup>2</sup>* *b<sup>3</sup>*, on which are supported endless chains *b<sup>4</sup>* *b<sup>5</sup>*. These chains are connected together at intervals by cross-bars or slats *b<sup>6</sup>*, supported by and connected at each end to the respective chains *b<sup>4</sup>* *b<sup>5</sup>*, the slats or cross-bars being preferably arranged at a distance apart corresponding to the distance between the slats or bars *a<sup>4</sup>* in the bottom of the casing *a*.

Below the slatted bottom of the casing *a* is a chamber *c*, preferably formed with an inclined bottom *c'*, having at its lower end a conduit or pocket *c<sup>2</sup>*, with a removable cover *c<sup>3</sup>*. Arranged within this chamber *c* is a pipe *c<sup>4</sup>*, having a series of slotted openings *c<sup>5</sup>* in the upper part thereof and connected by a suitable pipe connection *c<sup>6</sup>* to a water supply. At the receiving end of the casing *a*, and preferably above the shaft *b*, is a water-supply pipe *c<sup>7</sup>*, which enters the casing at a point above its discharge end and is turned down, as shown, so as to discharge the water admitted through the same downwardly around the end of the carrier formed by the endless chains and their connecting cross-bars or slats.

Extending downwardly at an angle from the receiving end of the casing *a* of this feeding-carrier is an elevating-carrier, which is adapted to discharge into the feeding-carrier. This elevating-carrier consists of endless chains *d'* *d<sup>2</sup>*, passing over suitable sprocket-wheels *d<sup>3</sup>* *d<sup>4</sup>*, which are secured to transverse shafts *d<sup>5</sup>* *d<sup>6</sup>* in a box or casing *d*. This box or casing *d* has an inclined bottom *d<sup>7</sup>*, the lower end *d<sup>8</sup>* being also preferably inclined, so as to form a pocket or chamber *d<sup>9</sup>* substantially under the lower shaft *d<sup>5</sup>*, and from this pocket there leads a discharge opening or pocket *d<sup>10</sup>*, having a removable cover *d<sup>11</sup>*. The endless carrying-chains *d'* *d<sup>2</sup>* are con-



nected together by suitable slats or bars  $d^{12}$ , which are armed with projections or spikes  $d^{13}$ , any suitable number of which may be employed across the carrier. Below the carrier thus formed there is a false bottom  $d^{14}$ , provided at intervals with slotted openings  $d^{15}$ , the rebeing also preferably provided at the lower end of the casing an inclined chute  $d^{16}$ , having slotted openings  $d^{17}$ . The sprocket-wheels  $d^3$  on the shaft  $d^5$  are preferably formed with extended rims, and to these rims is secured a cylinder  $d^{18}$ , of wire netting or gauze, as shown in detail in Figs. 3 and 4. The ends of the sprocket-wheels  $d^3$  are adapted to rest close to the sides of the casing  $d$  and in proximity to discharge-openings  $d^{19}$  in the sides of said casing, from which lead conduits  $d^{20}$  to permit the discharge of the waste water, as hereinafter more fully specified. These openings  $d^{19}$ , it will be understood, communicate with the inside of the cylinder  $d^{18}$  through the sprocket-wheels, which are formed with arms and openings for this purpose.

The stock to be fed is discharged with a quantity of water into the casing  $d$  at the lower end, so as to fall between the carrier and the inclined chute  $d^{16}$ . The carrier is caused to revolve in the direction of the arrow, so that the lower portion of the carrier moves upwardly along the false bottom  $d^{14}$ . The water, which is fed with the stock, fills the chamber  $d^9$  and causes the stock to float in contact with the cylinder and with the teeth or projections in the elevating-carrier, the surplus water passing through the gauze cylinder out through the discharge-openings  $d^{20}$ . The stock which is thus fed into this casing will be broken up by the spikes and drawn downwardly and around the cylinder, thence upwardly along the false bottom, and in the course of its travel will discharge through the slotted openings a large proportion of the foreign substances—such as sand, lime, and similar materials—which it contains, which substances fall into the chamber  $d^9$ , and can be removed at any time through the opening  $d^{10}$  by means of the removable cover  $d^{11}$ . The stock is carried by the elevating-carrier and discharged into the receiving end of the casing  $a$ , where it comes in contact with the water, which is admitted through the water-supply  $c^7$ , and is carried by the water thus admitted and the feeding-carrier downwardly into the pocket  $a'$ , and by the action of the water and carrier is more thoroughly broken up, then carried by the cross-bars or slats  $b^6$  along the bottom of the casing and over the cross-bars or slats  $a^4$ . Water is also admitted through the pipe  $c^6$  and escapes through the slotted openings  $c^5$  into the chamber  $c$  and keeps this chamber  $c$ , as well as the pocket  $a'$ , filled with water, the surplus water being adapted to overflow into the conduit  $a^3$ . As the stock is moved along the bottom of the casing it is rubbed between the respective slats  $b^6$  and  $a^4$ , and all foreign substances or matter of a

greater specific gravity than water will drop into the chamber  $c$  between the slats  $a^4$ . The stock being of a lighter specific gravity will be carried by the feeding-carrier and floated with the water into the conduit  $a^3$  in a uniform and regular manner and deposited into the washing or other machine, which is adapted to receive it.

It should be stated that the cross-bars  $a^4$  are supported on longitudinal bars  $a^5$  on each side of the casing at the bottom, the carrier-cars  $b^6$  being adapted to extend across and be supported at each end on these longitudinal bars, which are preferably shod with metal to form ways or guides for the traveling bars of the carrier. I also preferably employ at the top of the elevating-carrier cross-bars  $d^{21}$ , having inwardly-projecting spikes  $d^{22}$ , which assist in discharging the material from the fingers  $d^{13}$  as the endless chains of the carrier revolve.

In order to support the upper half of the elevating-carrier, I preferably employ under this part of the carrier belt or chains a slatted false bottom  $d^{23}$ , which is located between the respective sprocket-wheels and extends from side to side of the carrier-casing. This arrangement supports the carrier-belt and prevents the same from sagging between the supporting-wheels, and also permits the carrier to run in the opposite direction, if so desired, so that the stock may be carried over instead of under the carrier-belt. It should be stated also that water is supplied to the carrier-casing through the medium of a supply-pipe  $d^{24}$ , which is branched into perforated shower-pipes  $d^{25}$  and  $d^{26}$ , arranged, preferably, above the cylinder  $d^3$ .

A machine as above constructed is adapted to handle paper-stock in large quantities, to break up the masses of the same and deliver it into the washing or other machine to which it is to be fed in a regular and uniform manner, and freed from foreign substances which would be detrimental to the machine for which these devices are feeders.

Having thus described my invention, I claim—

1. The combination with a longitudinal casing having an open or slatted bottom as described, a traveling carrier having transverse slats adapted to pass over said slatted bottom, a chamber under said casing, and a water-supply in said chamber, substantially as specified.

2. The combination with the longitudinal casing having a pocket with an inclined bottom at the receiving end, and a conduit or discharge-opening at the discharge end, an open bottom having transverse bars between said pocket and conduit, a chamber under said bars, and a water-supply in said chamber, a feeding-carrier consisting of endless belts or chains having transverse bars to move longitudinally along the top of said water-chamber, substantially as specified.

3. The combination with the elevating-carrier and the longitudinal feeding-carrier, of



a water-supply introduced into said feeding-carrier at the open end of and above said carrier, and a casing having a water-chamber under said feeding-carrier which is adapted  
5 to discharge the water into said feeding-carrier, and rubbing-bars on said carrier and casing, respectively, substantially as specified.

4. The combination with the feeding-carrier, as described, of an elevating-carrier having feeding projections and a false bottom having slotted openings, a pocket under said bottom, and a perforated cylinder having discharge-openings leading from the inside thereof over which the endless belts or chains  
10 of said elevating-carrier pass, substantially as specified.

5. In a feeding device for paper-machines, an outer longitudinal casing, and an endless carrier therein having slats or projections  
20 extending transversely across the same, and a chamber under said carrier, a water-supply in said chamber, and transverse slats at the top of said chamber adapted to cooperate with the slats of the moving carrier to break  
25 up and separate the stock fed by said carrier, substantially as specified.

6. The combination with the endless carrier, and a casing in which the same operates, of a chamber in the bottom of and communicating with said casing, and a water-supply  
30 in the bottom of said chamber, transverse slats extending across said chamber, said endless carrier having similar transverse slats adapted to move across the top of said chamber, and ways for supporting said slats immediately above the transverse slats of said  
35 chamber, substantially as specified.

7. The combination with the feeding-carrier, of the elevating-carrier consisting of endless driving devices having transverse slats  
40 and projections thereon, an outer casing in which said carrier operates, a false bottom having openings in the same arranged parallel with and in proximity to one side of said elevating-carrier, a water-supply arranged  
45 above said carrier, and a screen cylinder forming part of said carrier and communicating with discharge-openings, substantially as specified.

8. The combination in a feeding-carrier of  
50 the elevating-carrier consisting of endless driving devices having transverse slats and projections thereon, an outer casing in which said carrier operates, a false bottom having openings in the same arranged under each  
55 half of said elevating carrier-belt, said false bottoms being each arranged parallel with and in proximity to the respective portion of the carrier-belt to which it is adjacent, and stripping devices at one end of said carrier-  
60 belt, substantially as specified.

9. The combination with the endless carrier and the casing in which it is inclosed, a screen cylinder forming part of the driving  
65 devices of said carrier, a false bottom under said carrier, and shower-pipes arranged above said carrier-cylinder, substantially as specified.

In testimony whereof I have hereunto set my hand this 31st day of December, A. D. 1895.  
70 THOMAS C. CADWGAN.

Witnesses:

SAMUEL P. MOORE,  
D. A. TANNER.