

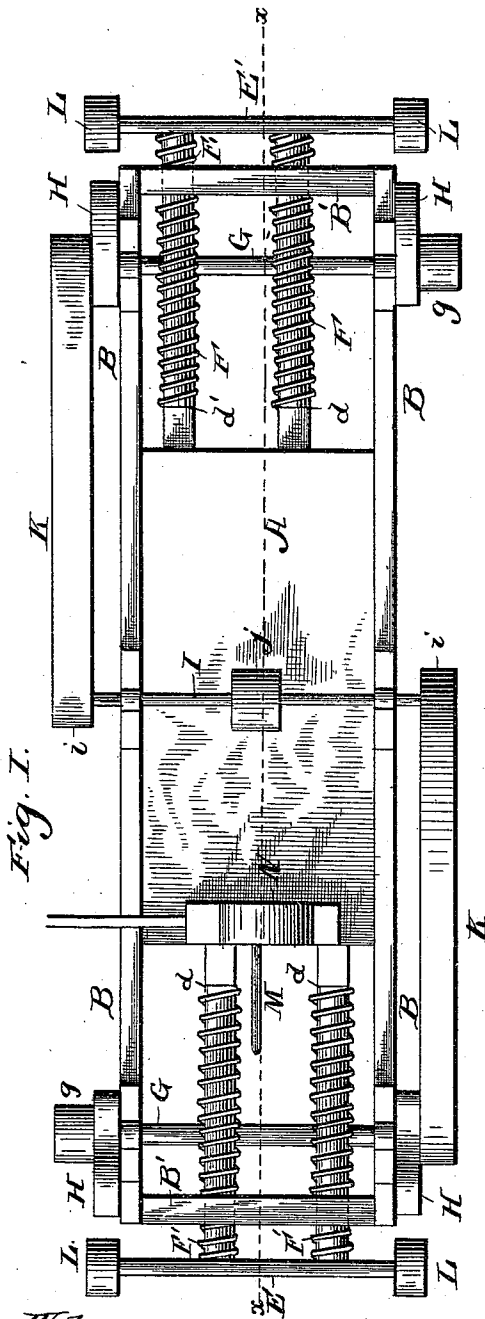
(No Model.)

2 Sheets—Sheet 1.

J. M. HOLMES.
DISINTEGRATING MACHINE.

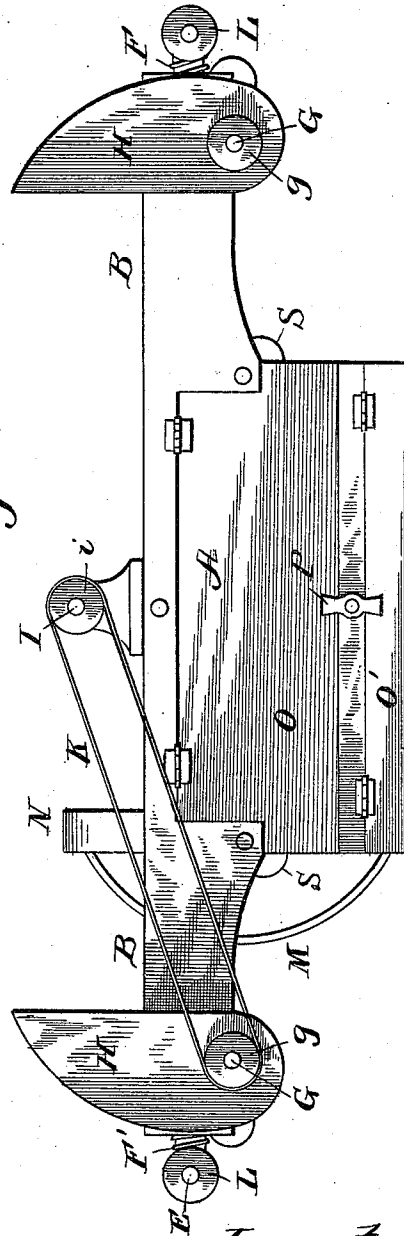
No. 469,141.

Patented Feb. 16, 1892.



Witnesses:
J. B. McGinnis.
Arthur L. Bryant.

Fig. II.



Inventor:
John M. Holmes.
By his Attorneys,
Edson & Co's.

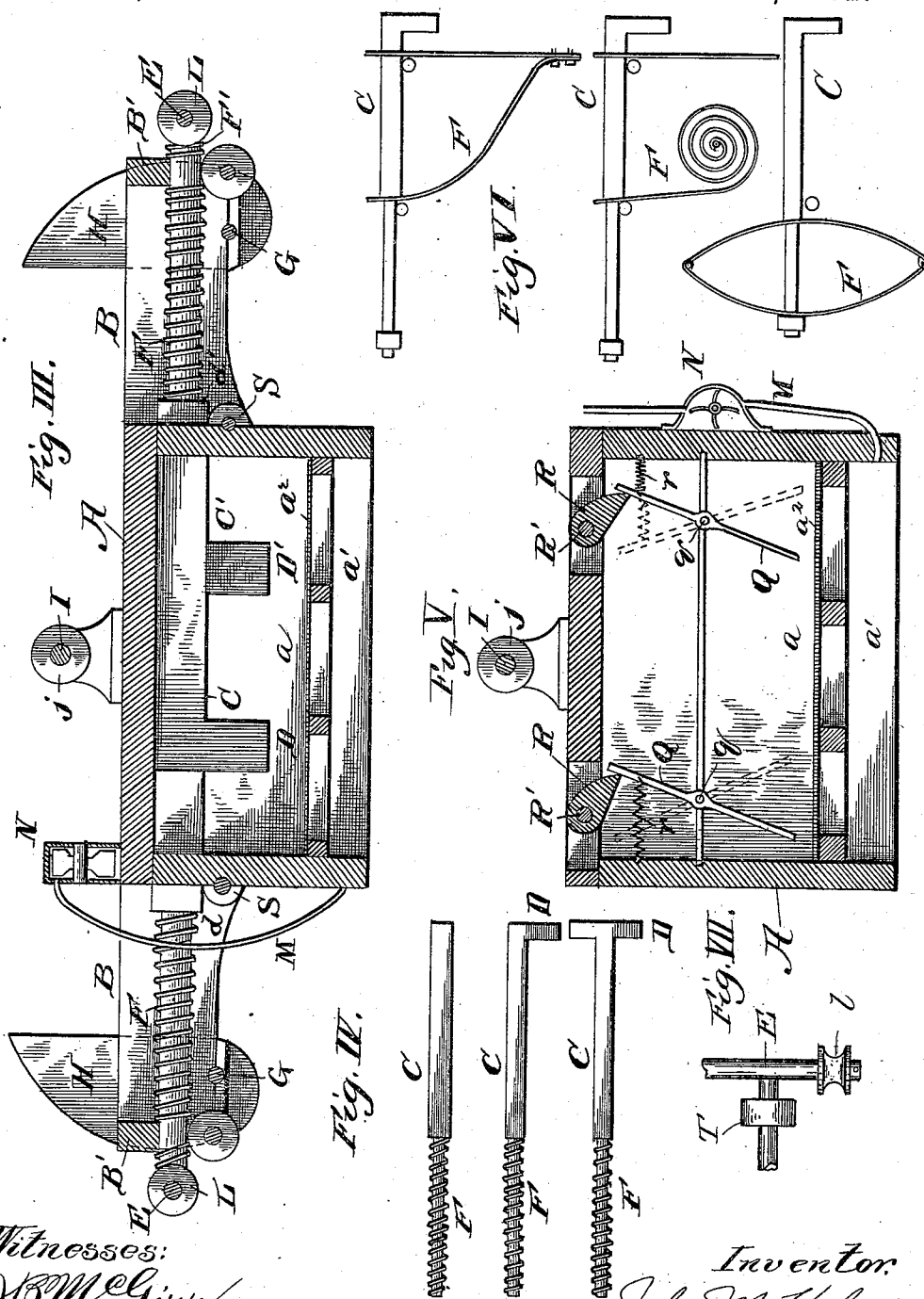
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Arthur L. Bryant

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UNITED STATES PATENT OFFICE.

JOHN M. HOLMES, OF GLENS FALLS, NEW YORK, ASSIGNOR TO CATHERINE
L. HOLMES, OF SAME PLACE.

DISINTEGRATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 469,141, dated February 16, 1892.

Application filed June 6, 1891. Serial No. 395,350. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. HOLMES, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented certain new and useful improvements in Disintegrating-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for preparing material for paper-stock and stock for carding purposes for use in manufacturing textile fabrics; and the objects are, first, to provide a simple and effective machine for disintegrating such material, and, second, to provide for the escape from the machine of all dirt, dust, &c., removed or beaten out of such material during its treatment in the machine.

With these ends in view my invention consists in the combination, with a receptacle or vessel open at its lower side and having a screen or foraminous diaphragm within the same above its open lower side, of a series of disintegrating or beater arms arranged within the vessel above the screen therein and means for operating said arms.

My invention further consists in the novel combination and arrangement of parts and details of construction, which will be hereinafter more fully pointed out and claimed.

To enable others to more readily understand my invention, I have illustrated the same in the accompanying drawings, in which—

Figure I is a plan view of a machine constructed in accordance with my invention. Fig. II is a side elevation. Fig. III is a longitudinal vertical sectional view on the line $x x$ of Fig. I. Fig. IV represents different forms of disintegrating bars; and Fig. V is a view, partly in section, of a modified form of my invention. Figs. VI and VII are respectively detail views of different forms of springs and of the upper or outer end of one of the beater-arms.

Like letters of reference denote corresponding parts in the several figures of the drawings, referring to which—

A designates the receptacle or vessel, which is provided with a screen or foraminous dia-

phragm a^2 , suitably supported within the receptacle A by a suitable frame.

B B are frames or brackets connected at opposite ends of the receptacle or vessel A, beyond which they extend.

Within the upper compartment a of the vessel A, formed by the diaphragm or screen a^2 , is arranged a series of disintegrators or beater-arms C C', the shanks or stems D D' of which are extended through the end walls of the vessel A and the cross-bars B' of the frames or brackets B B. The shanks or stems D extend through one end wall of the vessel A, while the shanks D' extend through the opposite end thereof. At the points where the shanks or stems D D' pass through the end walls of the vessel A and through the cross-bars B' are arranged friction-rollers S, with which the shanks or stems D D' contact, as shown in Fig. III, to reduce the friction and wear on the moving parts. The outer ends of the shanks or stems D D' are connected by means of cross bars or rods E E', respectively. The outer portions of the shanks or stems D D' are of less diameter than the inner portions thereof, which form on said shanks or stems the shoulders $d d'$. Around the reduced portions of the shanks or stems D D', between the shoulders thereon and the cross-bars B', are fitted coiled springs F, and short coiled springs F' are also fitted around the shanks between the cross-bars B' and the rods E E'.

In the bars or brackets B at both ends of the vessel A are journaled transverse shafts G, on the outer ends of which are secured band-pulleys g . To said shafts G, between the pulleys g and the side bars B, are secured cams H, the function of which will be hereinafter explained.

A horizontal shaft I is journaled in suitable bearings fixed to a vessel A, and said shaft is provided at each end with a band-pulley i and with an intermediate driving-pulley j . The pulleys i on the shaft I, one connected with the pulleys g on the shaft G by endless bolts or bands K, and the central pulley j on the shaft I are designed to be connected with the band-wheel on a shaft or an engine. (Not shown.)

Each of the rods E E' is provided at the

ends with collars or friction-rollers L, with which the cams H contact as the shaft G rotates and thereby reciprocate the rods E E' and the shanks or stems D D' attached thereto. The rods E E' and shanks D D' are returned to their normal positions by means of the coiled springs F F' after the cams H have moved such rods outward as far as possible. The disintegrators are thus reciprocated rapidly within the chamber *a* of the vessel A and the material placed therein reduced to a fibrous state or condition.

In Fig. IV, I have illustrated various forms of the beaters, one of which is formed with a T-shaped head, another with a straight head in line with the shaft, and a third having a right-angled head. The cams H can be so arranged that the shanks D D' will be moved outward in unison with each other or alternately, as may be desired.

As the materials in the chamber *a* are violently agitated by the disintegrators the dirt and dust therein are shaken out of such material and pass through the screen B into the lower compartment *a'*. Communicating with this lower chamber is a conveyer M, which is provided at an intermediate point with a fan N, adapted to be rotated or driven in any suitable manner to create a suction and draw off the dust and slight particles of dirt in the chamber *a'* and carry the same to a point outside of the machine. Access is had to the chambers *a a'* by means of doors O O', respectively, and said doors are both held in closed position by a button P, common to both doors, as shown in Fig. II.

In Fig. V, I have illustrated a modified form of my invention, in which the disintegrators consist of straight bars or arms Q, which are centrally connected by a bar or rod *q*. These arms Q are situated wholly within the chamber *a*, and coiled springs *r* are connected to them near their upper ends, the opposite ends of said springs being fastened to the end walls of the vessel A. The arms Q in this case are actuated by cams R, carried by suitable shafts R', arranged above the vessel A.

In Fig. VII, I have illustrated a beater-arm provided near its outer end with an elastic pad or washer T and in which the collars or friction-rollers L are provided with a grooved periphery *l* to receive the cams H.

The operation and advantages of my invention will be readily seen and appreciated by those skilled in the art from the foregoing description, taken in connection with the drawings.

I am aware that changes in the form and proportion of parts and details of construction of the devices herein shown and de-

scribed as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a vessel having a foraminous diaphragm, of the disintegrator-arms, the cams for impelling said arms in one direction, and the retracting-springs connected to said disintegrator-arms, substantially as described.

2. The combination, with a vessel having a foraminous diaphragm, of the reciprocating disintegrator-arms operating within said vessel and having the shanks or stems guided in suitable guides arranged outside of the vessel, the shaft-carrying cams which act to impel the disintegrator-arms, and the coiled springs fitted on the stems or shanks and having bearings against collars on said shanks, and the guides in which the shanks operate, substantially as described.

3. The combination, with a vessel having a foraminous diaphragm, of the reciprocating disintegrator-arms operating within the vessel and having their shanks extending through the end walls thereof, suitable frames connected to the ends of the vessel and serving as guides for the disintegrator-arms, shafts journaled in said frames, cams carried by said shafts, and means for rotating the cam-carrying shafts and thereby reciprocating the disintegrator-arms, substantially as shown and described.

4. The combination, with a vessel having the guide-frames secured to opposite sides and an internal foraminous diaphragm, of the disintegrator-arms arranged in said vessel on one side of the foraminous diaphragm and having their shanks extending through opposite side walls of the vessel and the guide-frames, cross-bars connecting the outer ends of the disintegrator-arms on each side of the vessel, crank-shafts journaled in the guide-frames, cams carried by said shafts and adapted to contact with the cross-bars on the ends of the disintegrator-arms, and means for revolving the cam-carrying shaft, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. HOLMES.

Witnesses:

W. A. TICE,

JNO. E. PARRY.