

(No Model.)

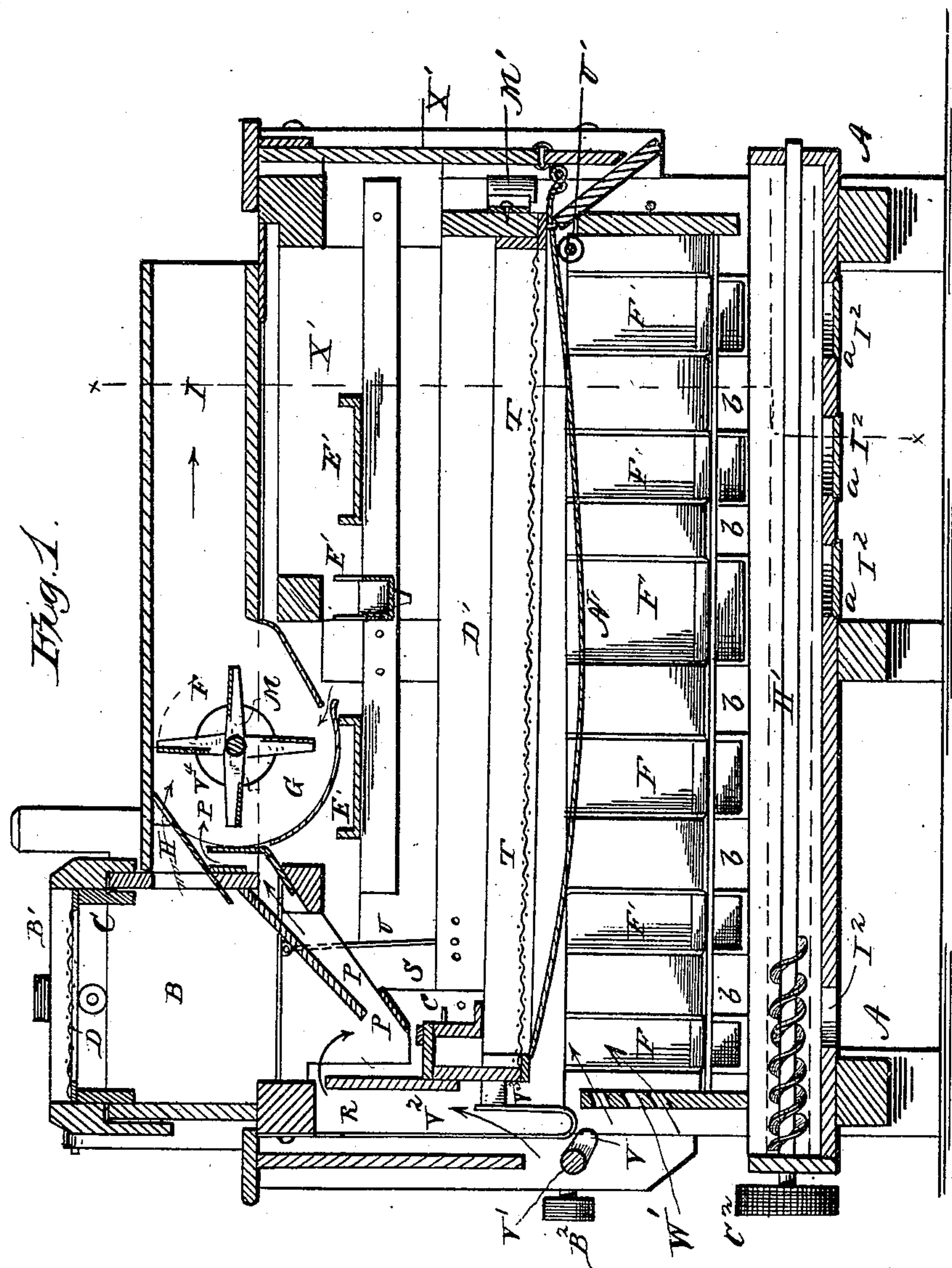
3 Sheets—Sheet 1.

H. R. MOSER & J. G. HOPE.

MIDDLINGS PURIFIER.

No. 250,947.

Patented Dec. 13, 1881.



Witnesses
F. L. Ourand
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Inventor.
H. R. Moser and
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By G. M. Alexander.
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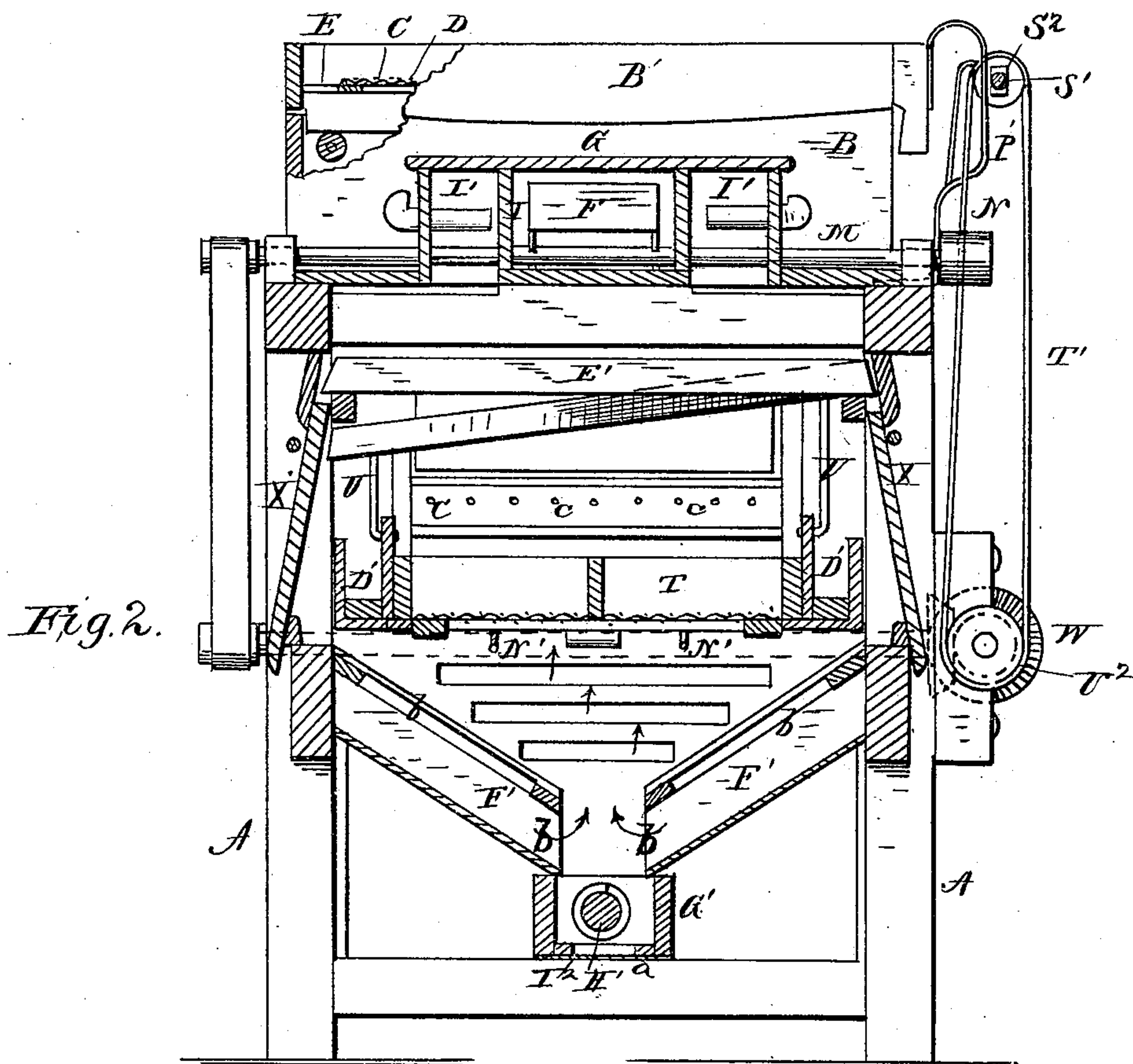
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UNITED STATES PATENT OFFICE.

HENRY R. MOSER AND JAMES G. HOPE, OF KANSAS CITY, MISSOURI.

MIDDLINGS-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 250,947, dated December 13, 1881.

Application filed August 25, 1881. (No model.)

To all whom it may concern:

Be it known that we, HENRY R. MOSER and JAMES G. HOPE, of Kansas City, in the county of Jackson, and in the State of Missouri, have
5 invented certain new and useful Improvements in Middlings-Purifiers; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters
10 of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in middlings-purifiers; and it consists in certain combinations and arrangements of
15 devices, herein fully explained, and pointed out in the claims.

In the annexed drawings, Figure 1 is a longitudinal vertical section of our improved apparatus. Fig. 2 is a vertical transverse section
20 through the apparatus, taken in the plane indicated by dotted lines *xx*, Fig. 1. Fig. 3 is an elevation of one side of the machine.

The same letters of reference indicate the same or corresponding parts.

25 A is the frame of the apparatus, which is adapted to contain and support the various operating parts thereof.

B designates the feed-hopper, which is mounted on the top of the frame, at one end thereof.
30 This hopper is provided at its top with a frame, B', in which is applied a frame, C, having stitched or otherwise attached to it a bolting-cloth, D. The frame C, at one or both ends, has an opening, E, through which the coarser
35 particles of the middlings escape below, and are prevented from entering the feed-box. The upper part of the feed-box communicates with an exhaust-fan, F, in a casing, G, at the top of
40 the frame A, by means of a passage, H. The said fan-casing is provided with a central discharge-spout, I, and two longitudinal side spouts, I'. The central spout, I, leads to the open air, and the side spouts or passages, I', have open bottoms, as shown in Fig. 2.

45 M designates the shaft of the fan, which shaft has on one end a driving-pulley, N, that receives motion by means of a belt from a pulley on a knocker-shaft, V.

50 The lower part of the hopper B communicates with the fan-casing G at or near the bot-

tom by means of a passage, P. The hopper, at one side, is provided with an opening, R, for the entrance of air. At the bottom the hopper is provided with a passage, S, leading to the vibrating screen T. This screen is
55 suspended upon oscillating hangers U, and receives an endwise shaking motion from a knocker, V', on a rotary shaft, V, acting through the medium of a curved spring, V², and an india-rubber block, V³. (Shown in Fig. 1.) The
60 shaft V receives rotation by means of bevel-gearing W, operated by means of a belt, A'. The said screen T is provided with longitudinal troughs D', arranged along its sides, which
65 troughs are for the purpose of catching the heavier granular parts of the product raised by the air-currents. Above the screen T transverse troughs E' are located, which are recep-
70 tacles for catching the dust that rises from said screen during the operation of the machine.

F' indicates a series of laterally-inclined troughs leading to a centrally-arranged longitudinal bottom trough, G', in which is a rotating
75 shaft, H', provided with a conveying-screw for discharging the different grades of purified middlings from the apparatus through openings I², which are provided with closing slides *a*. Alternately between the inclined troughs F' are formed air-passages *b*, through which air
80 is drawn by means of the exhaust-fan F.

The reciprocating shaker, at the rear end of the apparatus, is provided with springs M', which operate, in combination with the knocker and its springs at the opposite end of the
85 apparatus, to reciprocate the screen T and thoroughly agitate the material which falls upon it.

Below the screen-cloth T are arranged longitudinally cords N', which are alternately tightened and loosened by the reciprocation of the
90 shaker or screen frame, and by beating against the screen keep the meshes free. The bolting-frame B', above the hopper B, receives endwise reciprocating motion by means of a spring, P', and a knocker, S', on the shaft S², which latter is driven by a belt, T', connecting with
95 a pulley, U, of the driving-gear W.

The fan-casing is provided with openings V⁴, for the admission of air, &c., and the front of the apparatus with inclined upwardly and inwardly directed slots W', for directing currents
100

of air against and through the screen-cloth T. The sides and one end of the apparatus above the inclined lateral troughs are inclosed by removable panels X', so as to cause the air to pass through the proper openings when the fan is in operation.

It will be seen from the above description that the impure middlings with the bran are thoroughly bolted by the screen D, and that the coarser material passes off at the end of this screen, while the finer parts fall through it, through the hopper B, and escape from the bottom of the hopper. At this point the material passes between comb-teeth or distributors c and fall upon the screen T. During the descent of the material it is subjected to currents of air drawn into the hopper through the oblong slot R by the exhaust-fan, which currents take the course indicated by the arrows in Fig. 1 and enter the fan-case at the openings P and are expelled through the spout I. During the screening or bolting process on the screen T strong currents of air will be directed upwardly through this screen, which currents enter the space beneath the screen through the openings described, and, carrying with them dust, &c., pass through the side chambers, I', through the fan-case, and are expelled through the spout I. The heavier dust which is not carried off with the air will be collected in the traps or troughs E'. The good material which passes through the screen T falls into the inclined trough F', and is carried down into the central bottom trough, G', where it is distributed to the openings I' in grades and discharged into suitable receptacles.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with the exhaust-fan, reciprocating screen or shaker, and their operating mechanism, the laterally-inclined troughs at the bottom of the apparatus, the intervening air-ducts, and the longitudinal trough and conveyer, all arranged to operate substantially in the manner specified.

2. The combination of the shaking screen T, the air-inlets below this screen, the fan, the side troughs, D', and the removable troughs E', substantially as described.

3. The combination of the shaking screen T, the air-inlets b, below this screen, the troughs D', arranged at the sides of the screen, and the fan, arranged substantially as described.

4. The combination of the fan F, its case G, outlet I, the feed-hopper B, air-inlet R, upwardly-inclined passage P, leading from a point near the bottom of the hopper into the fan-case, and the air-passage H, leading from the hopper directly into the fan-case, substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 14th day of June, 1881.

HENRY R. MOSER.
JAMES G. HOPE.

Witnesses:

A. R. NIXON,
J. D. HOPE.