

No. 668,205.

Patented Feb. 19, 1901.

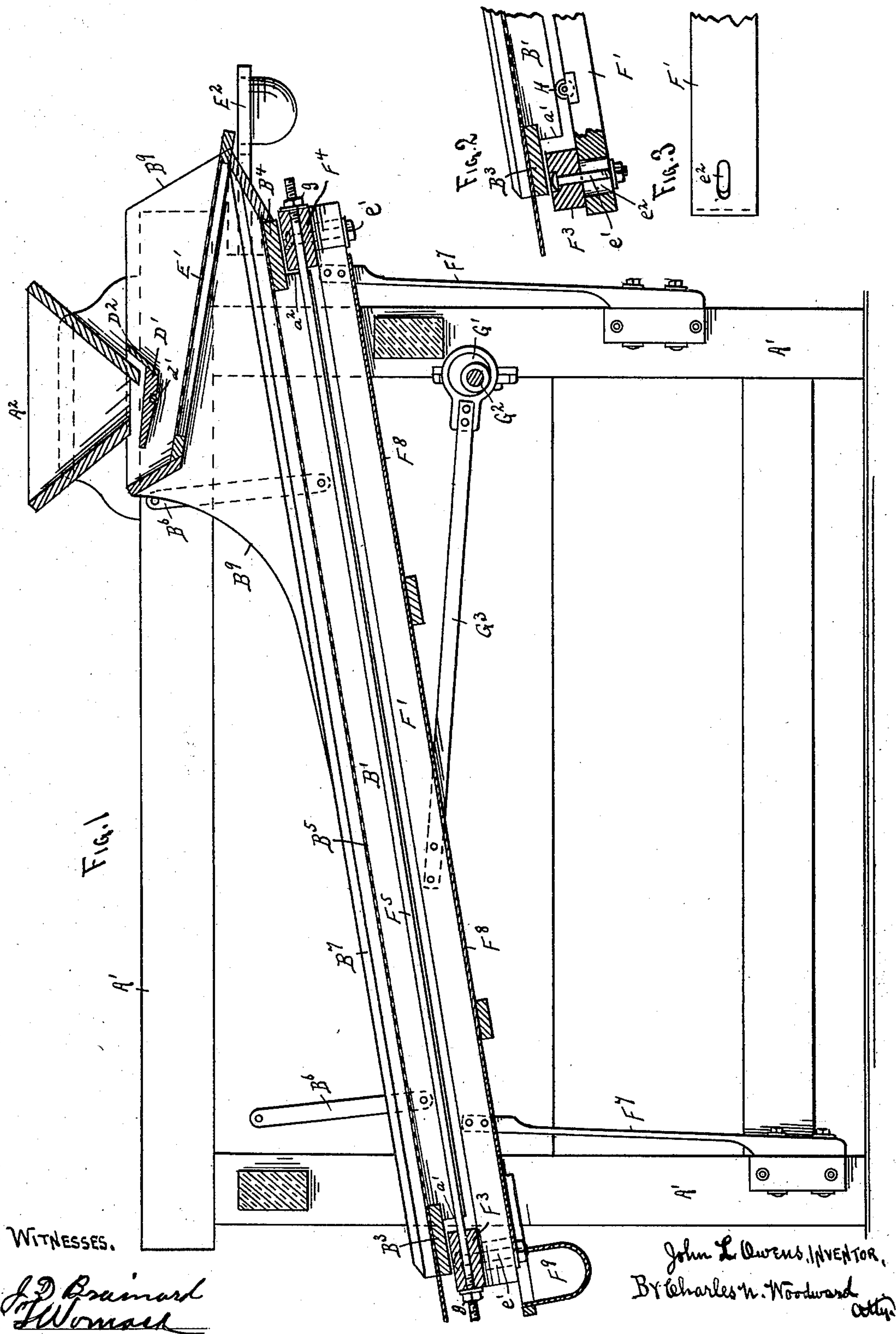
J. L. OWENS.

DOUBLE ACTING GRAIN CLEANING MACHINE SCREEN.

(Application filed Jan. 22, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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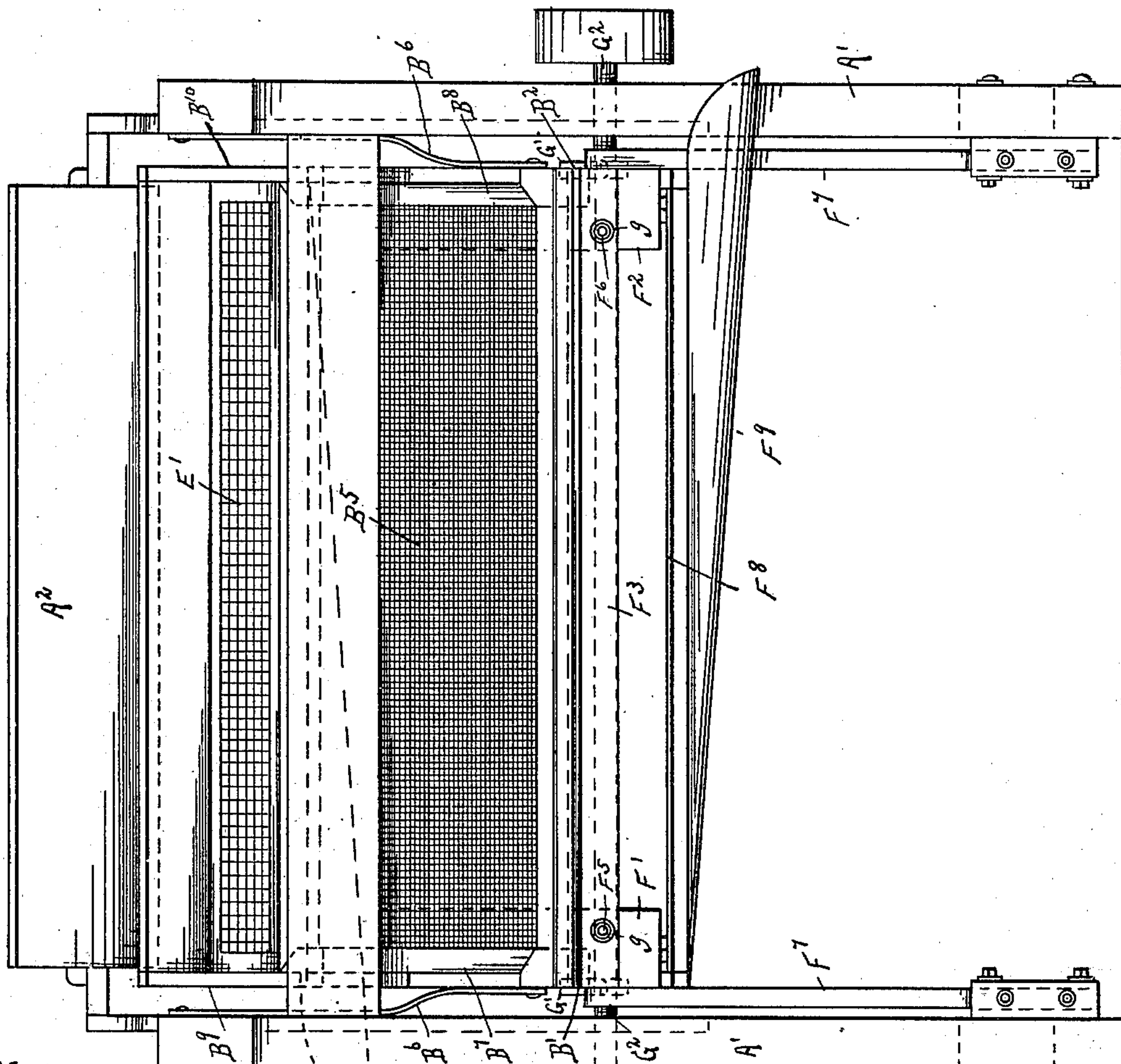
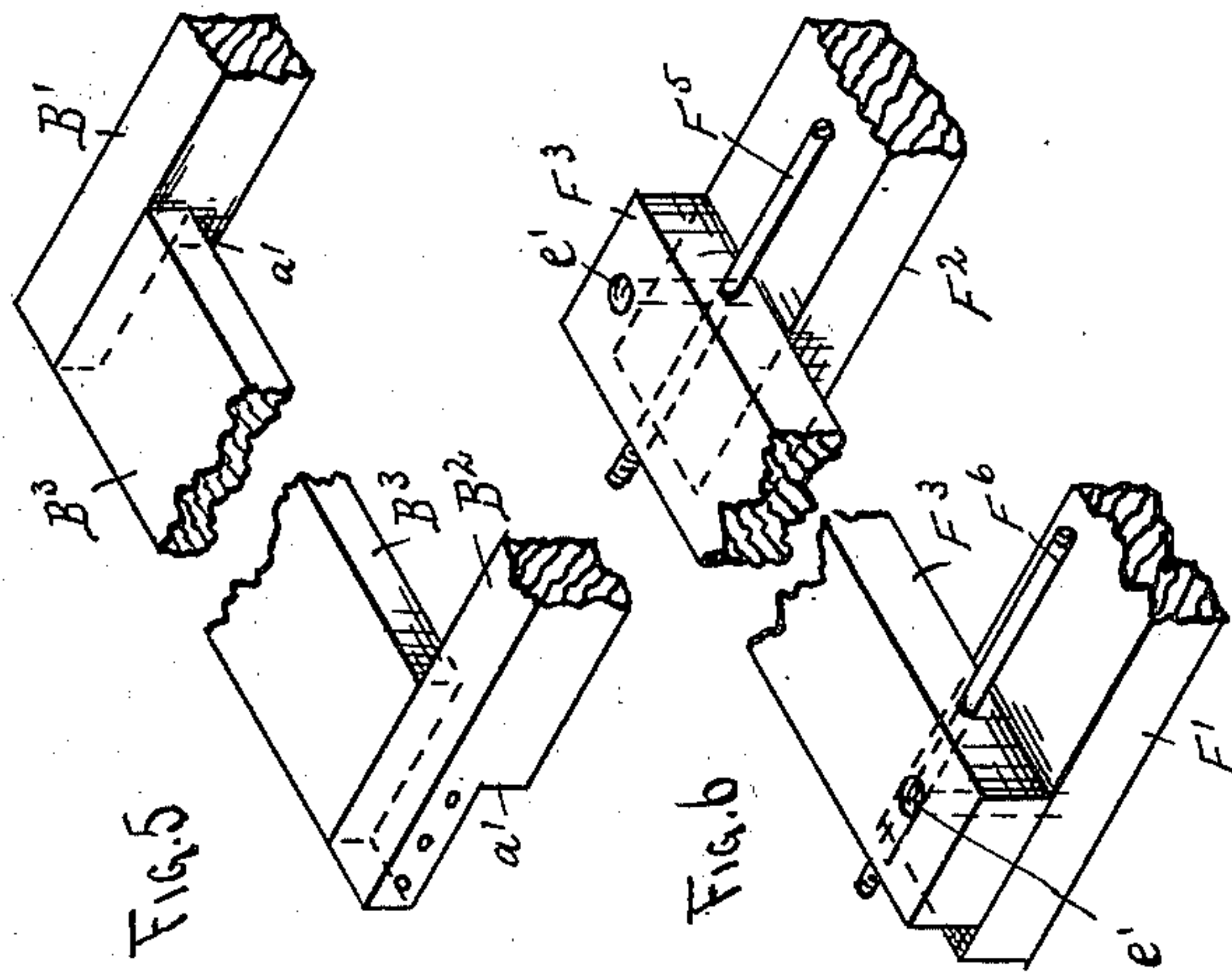
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2 Sheets—Sheet 2.



WITNESSES.
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Fig. 4

John L. Owens, INVENTOR
By Charles H. Woodward, Atty.

UNITED STATES PATENT OFFICE.

JOHN L. OWENS, OF MINNEAPOLIS, MINNESOTA.

DOUBLE-ACTING GRAIN-CLEANING-MACHINE SCREEN.

SPECIFICATION forming part of Letters Patent No. 668,205, dated February 19, 1901.

Application filed January 22, 1900. Serial No. 2,281. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. OWENS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Double-Acting Grain-Cleaning-Machine Screens, of which the following is a specification.

This invention relates to grain-cleaning machines; and it consists in the construction, combination, and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a sectional side elevation of the machine complete. Fig. 2 is a detached sectional detail of a portion of the framework, illustrating its construction more fully and also illustrating a modification in some of the details of the construction. Fig. 3 is a plan view of one end of one of the frame-plates detached. Fig. 4 is an end elevation from the "tail end" of the machine. Figs. 5 and 6 are detached perspective details of portions of one end of the framework, illustrating the details of construction.

A' is the framework, which is preferably oblong in shape and supporting a feed-hopper A² at one end.

Suspended within the framework A' is an inclined screen-frame, and beneath this screen-frame and partially inclosing it is a shoe or secondary frame, supported from the main framework A' and adapted to be vibrated, the secondary frame being somewhat longer than the screen-frame, so that as the secondary frame is vibrated it strikes the ends of the screen-frame alternately and produces a vigorous jarring motion to the screen-frame. The screen-frame consists of two side plates B' B² and transverse end bars B³ B⁴, the screen material B⁵ being attached to the upper surfaces of the four pieces B' B² B³ B⁴, as shown. The side members B' B² are suspended at an incline by bars B⁶ from the frame A' and project for some distance below the transverse end pieces by their lower sides, as shown, and with the ends of the side members cut away to form shoulders a' a². Along the upper surfaces of the side members B' B² are secured guard-strips B⁷ B⁸ to confine the material passing over the screen to the screen-surface, and at the upper end the screen-frame is pro-

vided with upwardly-extended sides B⁹ B¹⁰, partially inclosing the lower or discharge end of the hopper A². Supported between the extensions B⁹ B¹⁰ on a transverse rod d' is a feed-plate D', the feed-plate adapted to be adjusted on the central rod to regulate the flow of the material by increasing or decreasing the inclination of the feed-plate. The feed-plate has a rearward upward extension D² and partakes of the vibratory motion of the screen-frame, and thereby insures the proper flow of the material over the feed-plate. Supported between the extensions B⁹ B¹⁰ is a shorter coarser screen E', inclined reversely to the screen B⁵ and adapted to discharge its tailings into a transversely-inclined spout E², supported from the screen-frame and partaking of the motion of the screen, whereby the "tailings" from the screen are discharged at one side of the machine.

Beneath the screen-frame is supported a secondary frame, consisting of side bars F' F² and transverse end bars F³ F⁴, the end bars secured across the ends of the side bars by bolts e', fitting through slots e² in the side bars near their ends to provide for the adjustment of the end bars. The end bars are connected by tie-rods F⁵ F⁶, so that all outward strains are borne against the nuts g on the ends of the rods. The end bars F³ F⁴ fit beneath the end bars B³ B⁴ of the screen-frame, with the shoulders a' a² projecting behind the inner faces of the end bars F³ F⁴ of the secondary frame, so that as the secondary frame is vibrated the end bars F³ F⁴ strike against the shoulders a' a² and impart a knocking motion to the screen-frame. The secondary frame is supported upon spring-stands F⁷ and is adapted to be rapidly vibrated, as by eccentrics G' on a cross-shaft G² and eccentric-straps G³, connecting the eccentrics to the said bars F' F². The secondary frame is provided with an imperforate bottom F⁸ and arranged to discharge the material falling on the imperforate bottom into an inclined transverse spout F⁹, attached to the secondary frame, so as to partake of its vibratory motion and provide for the discharge of the material passing through the screen off to one side of the machine. If preferred, the suspension-bars B⁶ may be replaced by rollers H, between the sides B' B²

of the screen-frame and the sides F' F^2 of the secondary frame, as shown in Fig. 2. By this simple arrangement of mechanism I am enabled to secure a very vigorous vibration
 5 and knocking motion to the screen-frame, which produces very greatly improved results in cleaning certain kinds of grain.

The coarse preliminary screen E' enables me to separate out the coarser material and
 10 prevent it from passing to and mingling with the material passing over the screen B^5 .

The arrangement for adjusting the transverse end bars F^3 F^4 by the combined action of the rods F^5 F^6 and the bolts e' and slots e^2
 15 is an important feature, as the lengths of the vibrations and the consequent force of the "knocking" may be thereby adjusted to conform to the requirements of the quality of material being treated, some kinds of mate-
 20 rial requiring a much more vigorous treatment than others.

Having thus described my invention, what I claim as new is—

1. In a grain-separator, a screen-frame con-
 25 sisting of downwardly-projecting side members and transverse end members and covered on their upper surfaces with the screen material, a secondary frame consisting of side members and transverse end members, and
 30 supported to be vibrated, the end members of

the secondary frame being connected adjust-
 ably to the side members of that frame and pro-
 jecting outside the ends of said downwardly-
 projecting side members of said screen-frame,
 whereby the space between the adjacent parts 35
 of the said end members of said secondary frame and the side members of said screen-frame may be regulated, substantially as and for the purpose set forth.

2. In a grain-separator, a screen-frame con- 40
 sisting of downwardly-projecting side members and transverse end members said frame being covered on its upper surface with the screen material, a secondary frame consist-
 ing of side members and transverse end mem- 45
 bers, and supported to be vibrated, the end members of the secondary frame projecting outside the ends of said downwardly-project-
 ing side members of said screen-frame, and tie-rods connecting said end members of said 50
 secondary frame and provided with adjusting-nuts outside said end members, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing 55
 witnesses.

JOHN L. OWENS.

In presence of—

C. N. WOODWARD,

A. LINDAHL.