

No. 755,943.

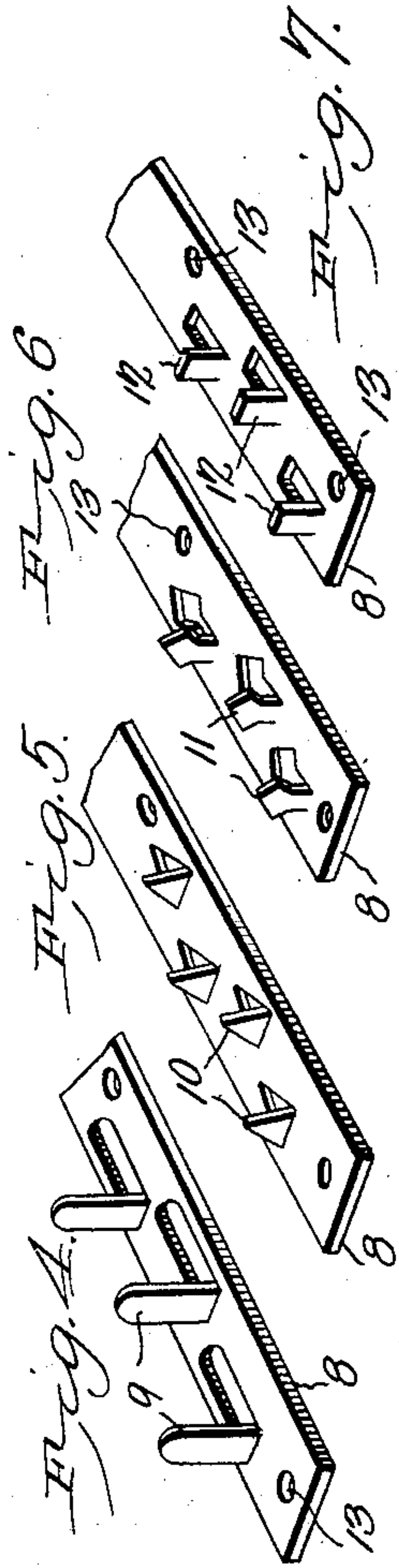
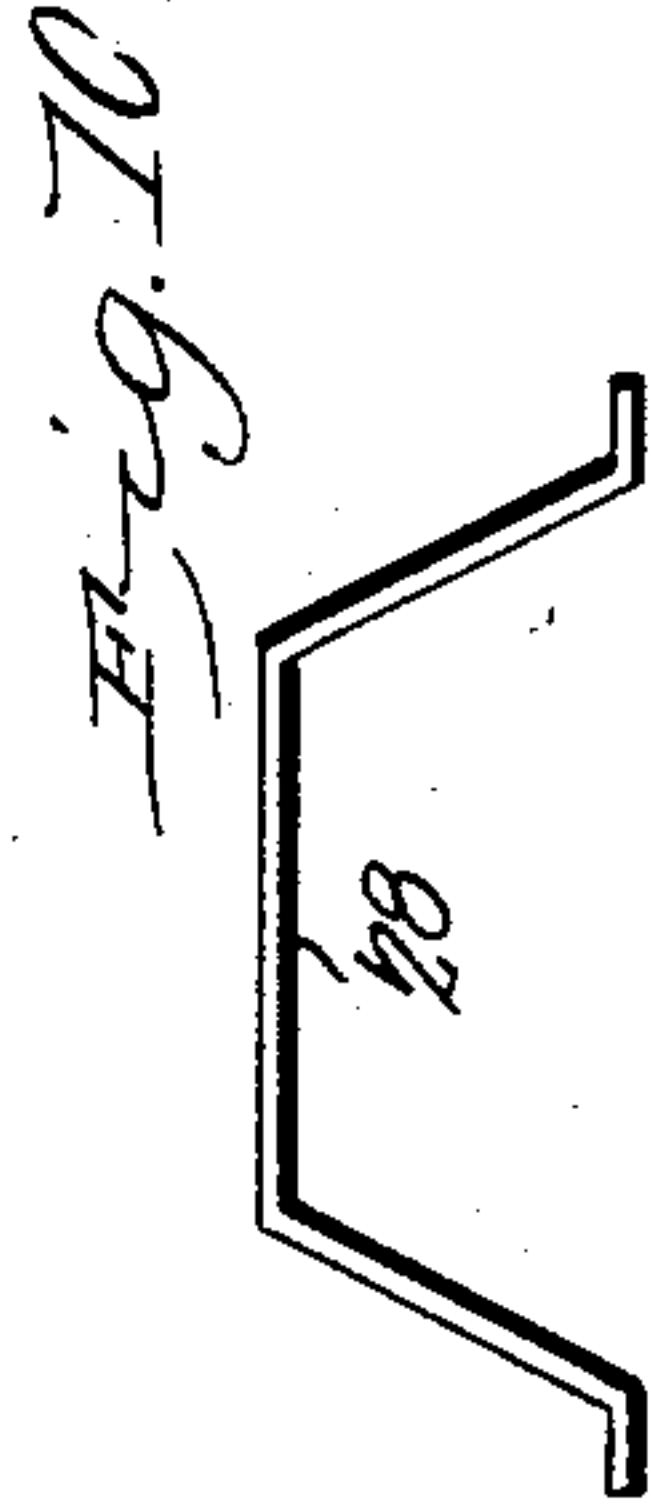
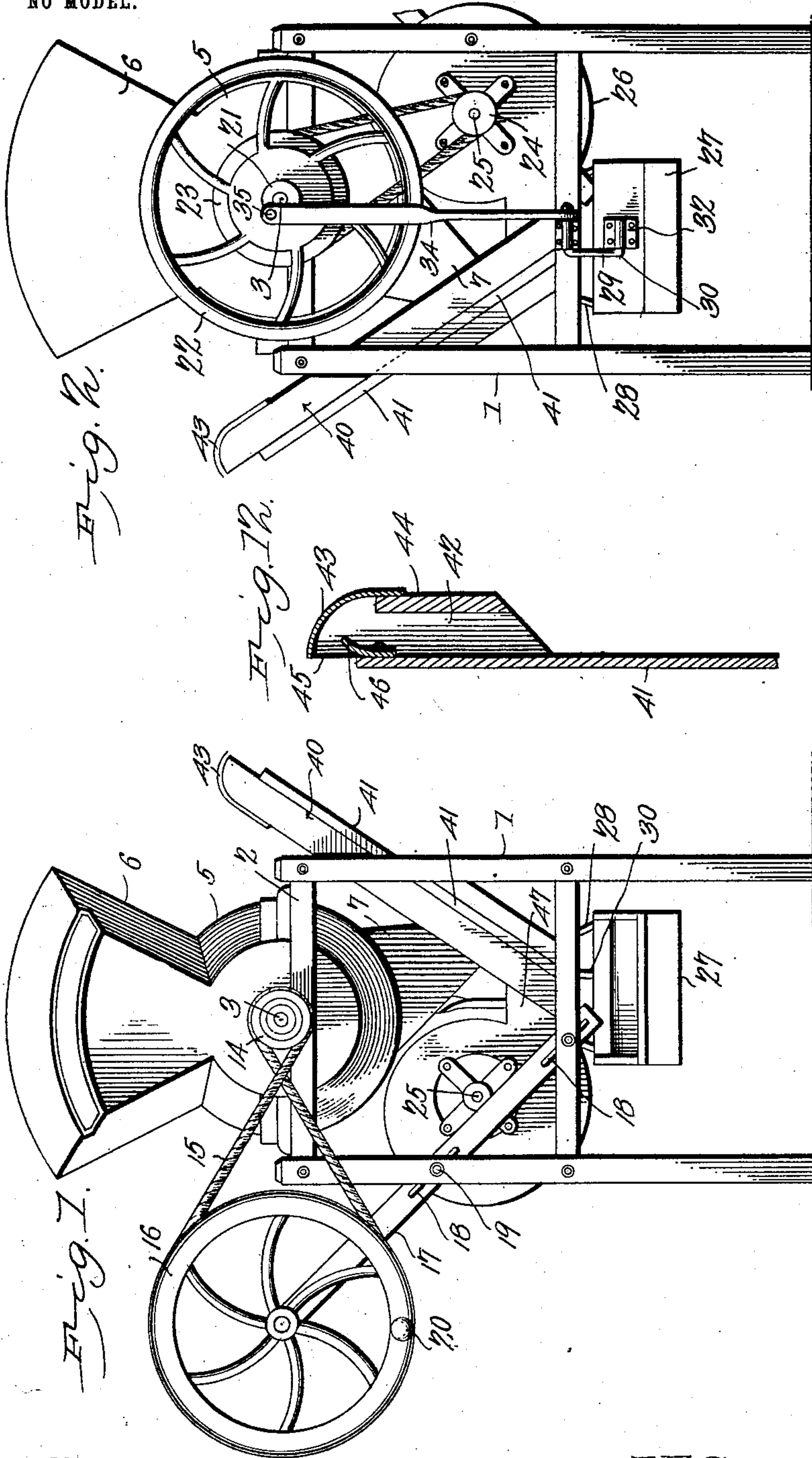
PATENTED MAR. 29, 1904.

J. E. SANDERS.
THRESHING AND SEPARATING MACHINE.

APPLICATION FILED MAY 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. Stewart
Wm. Bagger.

J. E. Sanders, Inventor.
by C. A. Snow & Co.
Attorneys.

No. 755,943.

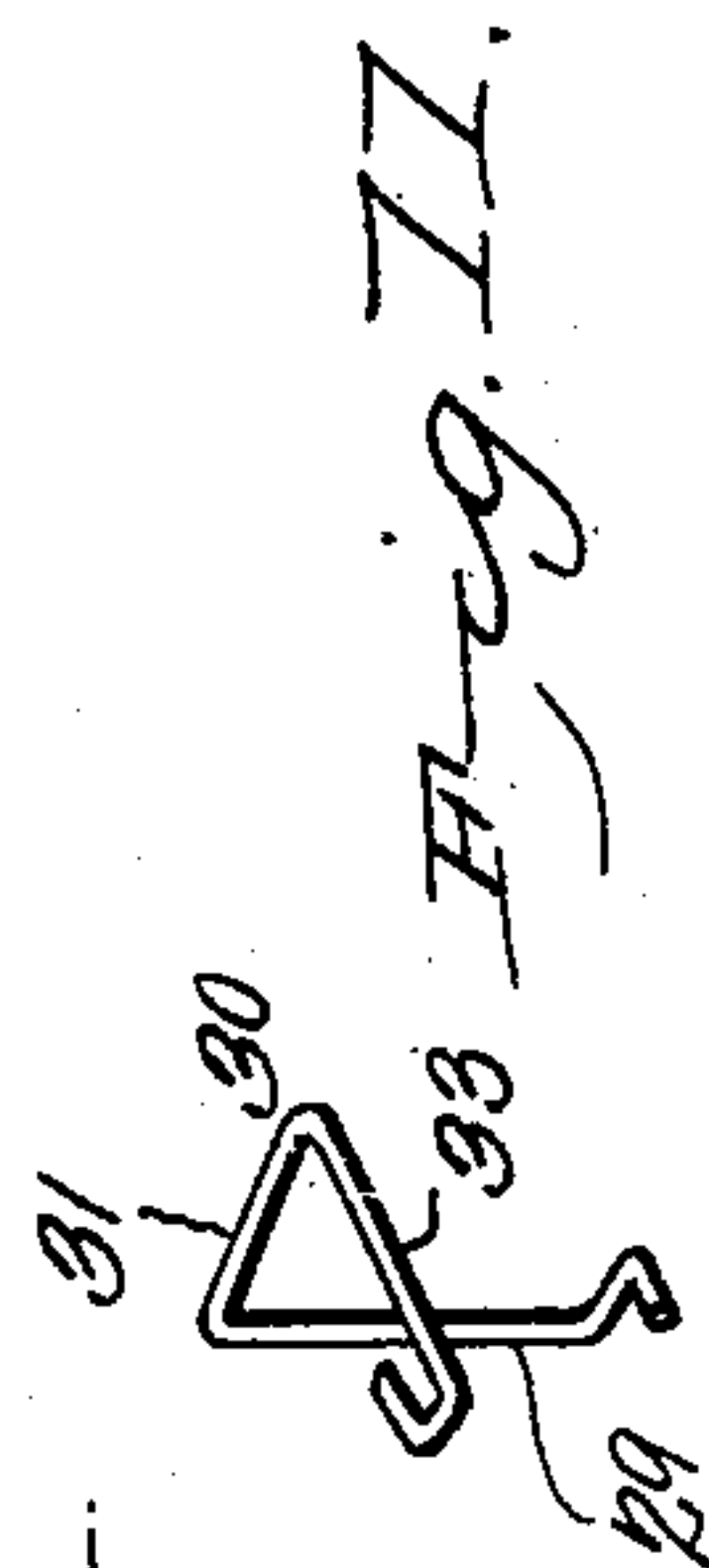
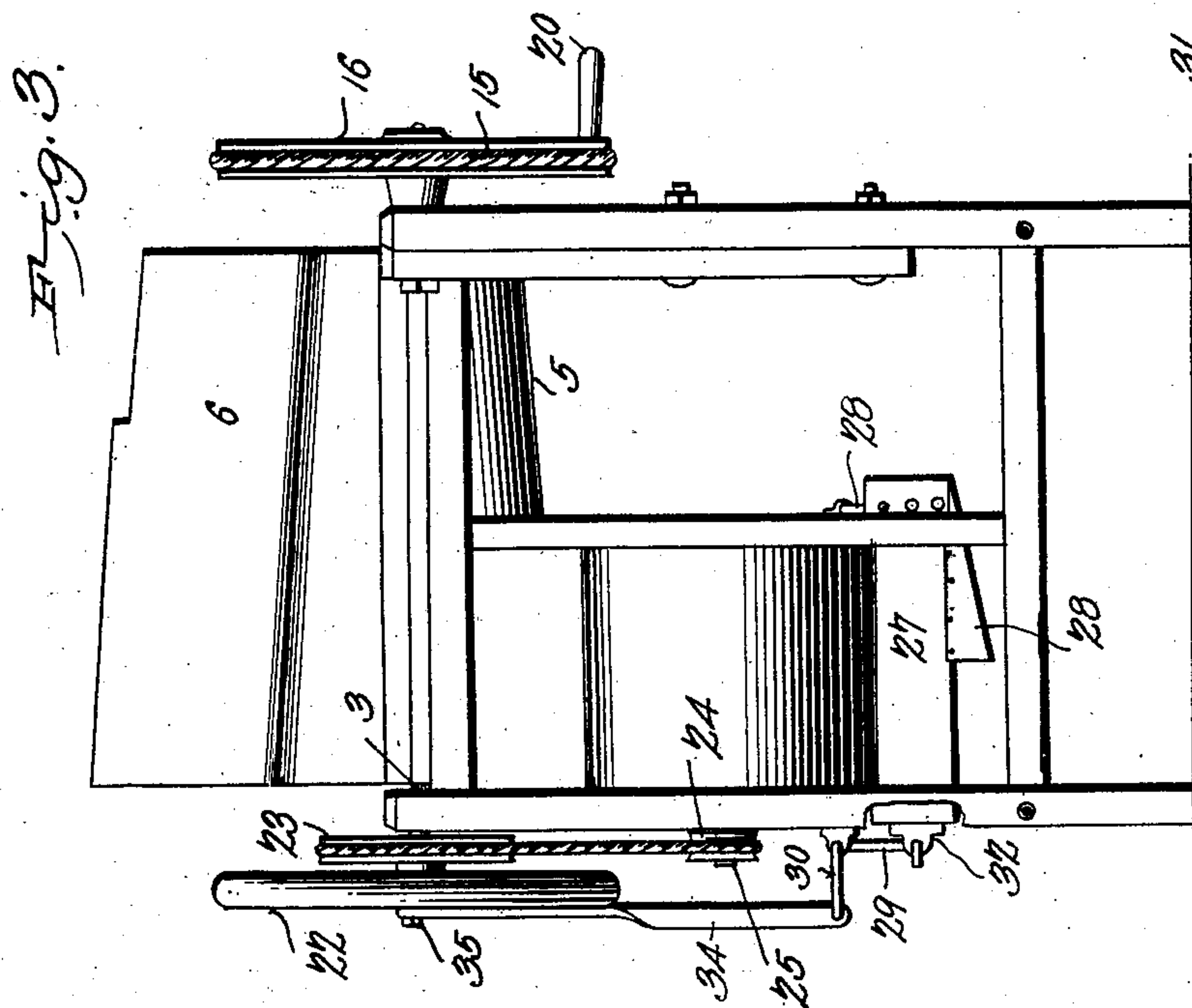
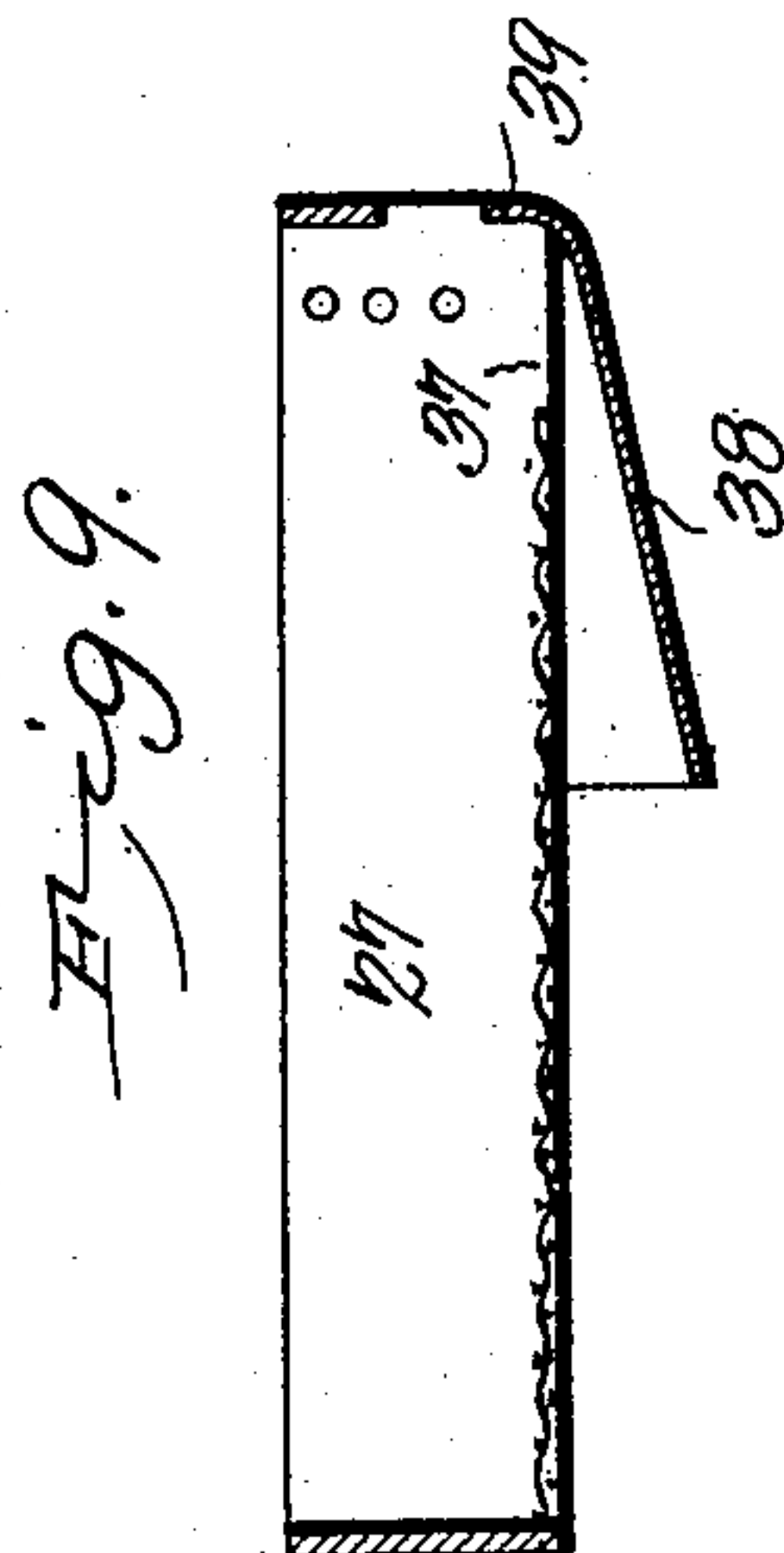
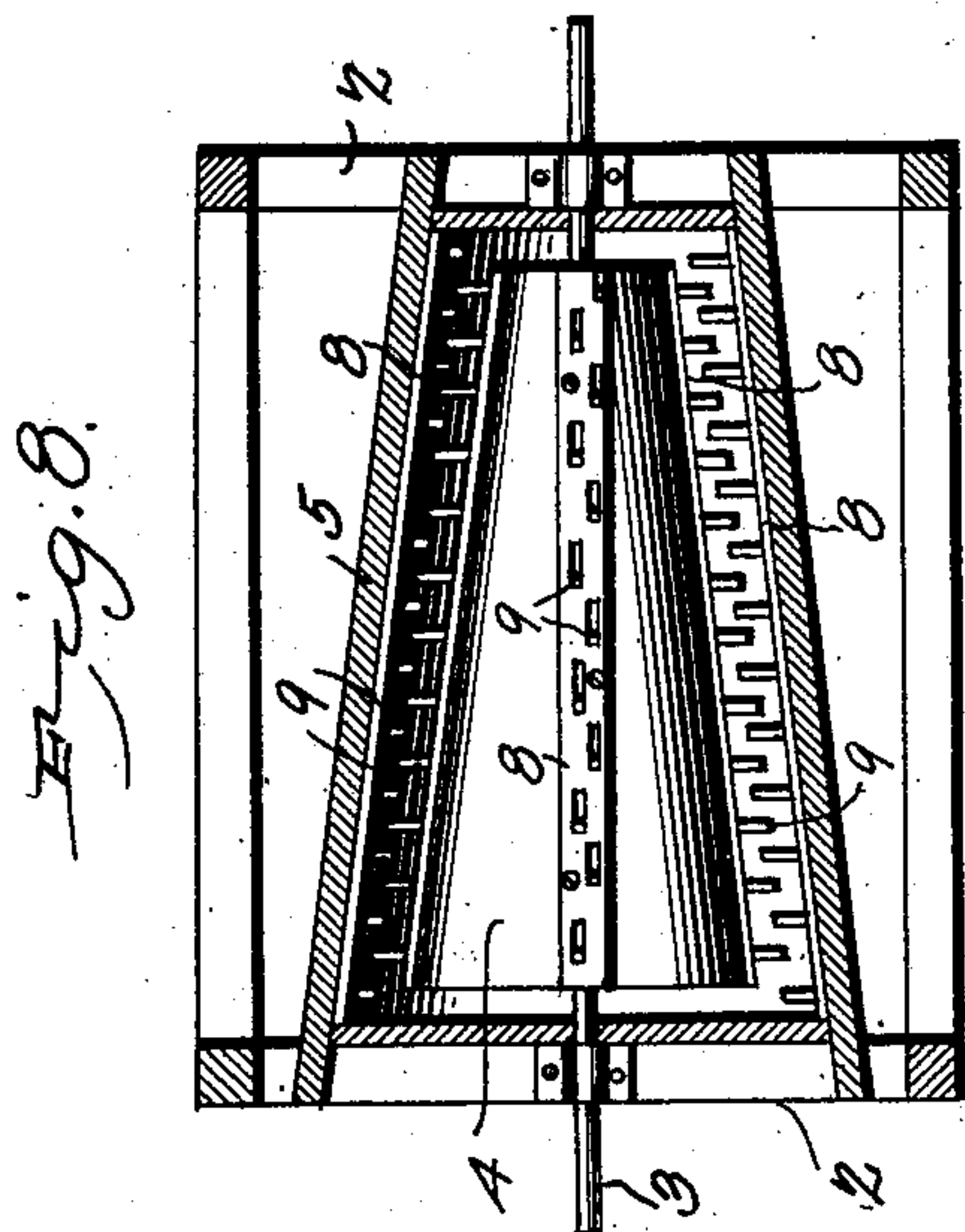
PATENTED MAR. 29, 1904.

J. E. SANDERS.
THRESHING AND SEPARATING MACHINE.

APPLICATION FILED MAY 15, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
E. J. Stewart
Wm. Bagger

J. E. Sanders, Inventor.
by *C. A. Snow*
Attorneys

UNITED STATES PATENT OFFICE.

JAMES EWINGS SANDERS, OF DALTON, GEORGIA.

THRESHING AND SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 755,943, dated March 29, 1904.

Application filed May 15, 1903. Serial No. 157,302. (No model.)

To all whom it may concern:

Be it known that I, JAMES EWINGS SANDERS, a citizen of the United States, residing at Dalton, in the county of Whitfield and State of Georgia, have invented a new and useful Threshing and Separating Machine, of which the following is a specification.

This invention relates to machines for threshing or hulling and separating various seeds and grains, such as peas, beans, sorghum, and the like; and it has for its object to provide a machine of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the improved construction, combination, and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view of a machine constructed in accordance with the principles of my invention. Fig. 2 is a rear view of the same. Fig. 3 is a side view. Fig. 4 is a perspective detail view showing a section of one of the toothed strips with which the cylinder and concave of my improved machine is provided. Figs. 5, 6, and 7 are detail perspective views illustrating modified constructions of said strip. Fig. 8 is a sectional view taken longitudinally through the cylinder and concave. Fig. 9 is a sectional detail view of the screen of my improved device. Fig. 10 is a detail view of the hanger of the same. Fig. 11 is a perspective detail view of the bell-crank lever for communicating motion to the screen. Fig. 12 is a sectional detail view of the chute for the discharge of straw, chaff, &c.

Corresponding parts in the several figures are indicated by similar numerals.

1 designates a suitably-constructed frame which supports the working parts of my invention and which is appropriately constructed, preferably of wood, the general design being to provide a supporting means which shall combine the elements of lightness, simplicity, durability, and inexpensiveness. The front and rear top bars 22 of said frame support a main shaft 3, which is journaled in suitable bearings upon said top bars and

which carries the cylinder 4. In the drawings this cylinder has been shown as being of truncated conical form; but this is not the feature of my present invention. The cylinder is inclosed by a casing which is also supported upon the top of the frame and which comprises the concave 5 and the hopper 6, through which material to be operated upon may be fed to the cylinder. A discharge-spout 7 projects from the under side of the concave.

The cylinder and the concave are provided with teeth, which may vary as regards the size and shape thereof, but which have one feature in common, this being that the said teeth are struck up from strips of sheet metal, preferably steel, such strips or the ends thereof being shown in Figs. 4, 5, 6, and 7, where they are designated 8. These strips of metal may be of any suitable width—say about one inch and a half—and the teeth are struck up from the same alternately at opposite edges along the said strips, said teeth being thus disposed staggering on each strip. As regards the shape of these teeth, it may be varied to any extent. In Fig. 4 the said teeth 9 have approximately parallel sides and are rounded at their outer ends. In Fig. 5 the teeth are approximately triangular, as shown at 10. The teeth 11 in Fig. 6 are spear-shaped, and in Fig. 7, where the teeth have been designated 12, they are rectangular, approximately square. I wish it to be understood that the teeth may be of any shape or outline that may be desired or which may be found advantageous for the purposes intended. The cylinder as well as the casing constituting the conveyer are preferably constructed of wood, although I reserve the right to use sheet metal, if preferred. The toothed strips 8 are provided at their ends and at intermediate points of their lengths with perforations 13 for the reception of fastening screws or bolts, according to the material of which the cylinder and concave are constructed. Another important point is to be observed, and this is that the teeth upon the cylinder and those upon the concave are to be disposed intercurrently, this being obviously necessary in order to avoid interference of said teeth with each other. It will also be

observed that owing to the construction already described the said teeth will be set edge-wise with relation to each other. It follows that by this arrangement I not only secure
 5 the greatest strength, but also the most energetic action of the teeth upon the material that is to be operated upon, which by the action of the edges of the teeth is thoroughly torn asunder and threshed until the seeds are
 10 thoroughly separated from the hulls. By this construction the cylinder and concave may be produced at a very trifling expense, and the construction will be found to be durable and effective.

15 The cylinder-shaft 3 carries at one end thereof a small pulley 14, which is connected by a belt 15 with a band-wheel 16, which latter is journaled at the upper outer end of a bar 17, having slots 18 to receive bolts 19, where-
 20 by it is adjustably connected with the frame, the said bolts being passed through one of the uprights or supports and through one of the horizontal bracing-bars of said frame. The bar 17 will thus occupy the tilted or inclined
 25 position, (clearly shown in Figs. 1 and 2 of the drawings,) and the band-wheel 16, which is provided with an operating crank or handle 20, is thus disposed to one side of the machine, where it may be conveniently operated by
 30 hand, if desired. The belt 15 is in this case an ordinary round band, and as bands of this character are extremely liable to stretch the slot and bolt connections 18 and 19 are provided for the purpose of enabling the sup-
 35 porting-arm 17 to be readily adjusted to take up any slack that may possibly occur. It is obvious that by this construction and arrangement of parts the slack may be taken up easily and at any time when it may be desired
 40 and also that the wear upon the band 15 is greatly reduced over the wear to which it would be subjected if an idler were used for the purpose of taking up the slack. While I have here shown the band-wheel 16 as pro-
 45 vided with a crank, whereby it may be operated manually, it is obvious that any other power—such as steam, water, or electricity—may be called into requisition for the purpose of operating my improved machine.

50 The shaft 3 carries at its opposite end a band-wheel 21 and a balance-wheel 22, the former of which is connected by a band 23 with a pulley 24 upon the end of a fan-shaft 25, journaled in a fan-casing 26, and which is
 55 thereby operated.

27 designates a sieve or screen which is preferably rectangular in shape and which is supported by means of a hanger 28 at one end thereof, its opposite or outer end being sup-
 60 ported by means of the vertically-disposed arm 29 of a bell-crank lever 30, which is provided with an intermediate portion 31, connecting the arms thereof and journaled in a bearing upon the rear side of the machine, as
 65 shown at 32. The upper or approximately

horizontal arm 33 of the bell-crank lever is pivotally connected with the lower end of a pitman 34, the upper end of which has pivotal connection with a wrist-pin 35 upon the face of the balance-wheel 22. It follows that when
 70 the latter is revolved a vibratory motion will be imparted to the sieve 27. The latter is provided at its inner or discharge end with an opening 37, which connects with a return-spout 38, which consists simply of a sheet-metal
 75 gutter or trough disposed upon one side of the sieve. At the receiving end of this return-spout is formed a lip 39, of bendable metal, which may be adjusted so as to prevent the seeds from slipping past the receiving end of
 80 the return-spout.

40 designates a discharge-chute which is composed of an inclined plane 41, consisting of a common flat board, the same being provided at its upper or discharge end with a
 85 hood composed of side pieces 42 and a curved discharge end 43, which is preferably made of sheet metal. The side pieces or flanges 42 may also be partially connected by means of a board 44. The curved hood has a discharge-
 90 opening 45, within which is disposed a transverse strip 46, of flexible or bendable material, the function of which is to prevent seeds from being wasted through the discharge-opening in case the blast should be stronger
 95 than necessary. The lower end of this discharge-chute is extended down into the sieve, as will be clearly seen in Figs. 1 and 2 of the drawings, and it may be supported in the frame in any suitable manner which shall en-
 100 able it to be readily withdrawn when desired and packed in the hopper of the machine for shipment or storage purposes. The lower end of the hood, which forms a part of the chute, is disposed to receive the direct blast from
 105 the fan, the spout 47 of the fan-case being extended directly into the hood of said chute.

The operation and advantages of this machine will be readily understood from the foregoing description, taken in connection with
 110 the drawings hereto annexed. I would have it understood that I do not make claim to the frame structure, the relative disposition of the cylinder, hopper, fan, and such like features as are common to machines of this class; but
 115 I would also have it understood that while I have in the foregoing described a simple and preferred form of my invention I do not thereby limit myself to the precise structural details herein incorporated, but reserve the right to
 120 any changes, alterations, and modifications which may be resorted to within the scope of my invention and without departing from the spirit or sacrificing the utility of the same.

Having thus described my invention, I
 125 claim—

1. In a threshing and separating machine, a threshing-surface made up of a cylinder and concave having corresponding smooth sur-
 130 faces, said concave extending half-way around

the lower part of the cylinder, and a plurality of metallic strips mounted and suitably spaced upon the smooth exterior surface of the cylinder and upon the corresponding smooth interior surface of the concave, said strips being provided with struck-up teeth disposed at right angles to the axis of the cylinder, the teeth upon the cylinder and those upon the concave being disposed intercurrently.

10 2. In a machine of the class described, a sieve having an open discharge end, a return-spout mounted upon the under side of the sieve and connected with the open discharge end thereof, and a bendable lip at the receiving end of
15 said return-spout.

3. In a machine of the class described, a discharge-chute comprising a bottom board forming an inclined plane, side flanges upon the latter, a curved hood connecting said side flanges and extended above the inclined plane to form a discharge-opening; and a bendable strip disposed below said discharge-opening. 20

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES EWINGS SANDERS.

Witnesses:

E. P. DAVIS,

J. G. McLELLAN.