

No. 698,221.

Patented Apr. 22, 1902.

G. PIACENTINO.  
FLOUR MILL.

(Application filed Sept. 20, 1901.)

(No Model.)

4 Sheets—Sheet 1.

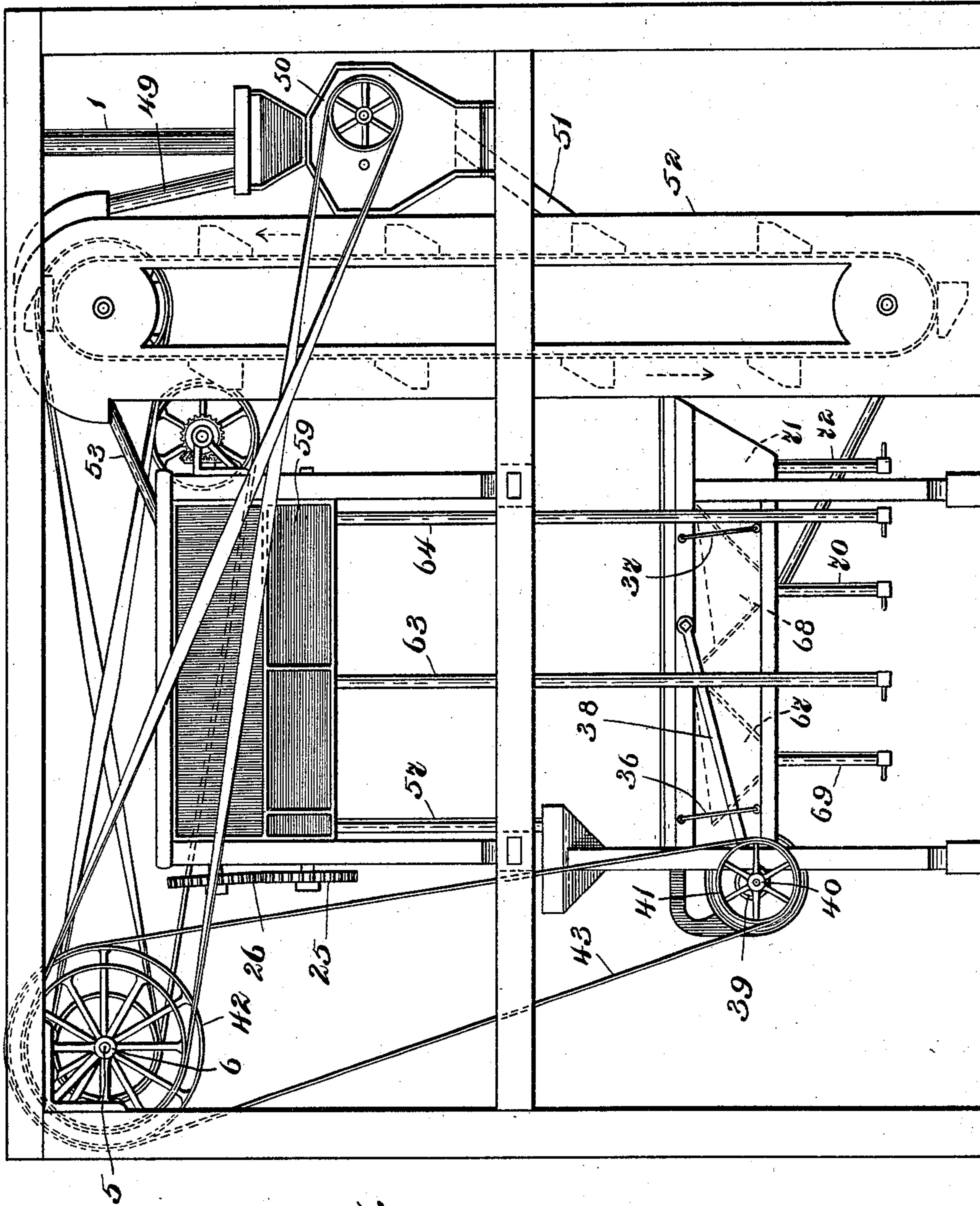


Fig. 1.

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Inventor:

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By Wright Brown Quincy  
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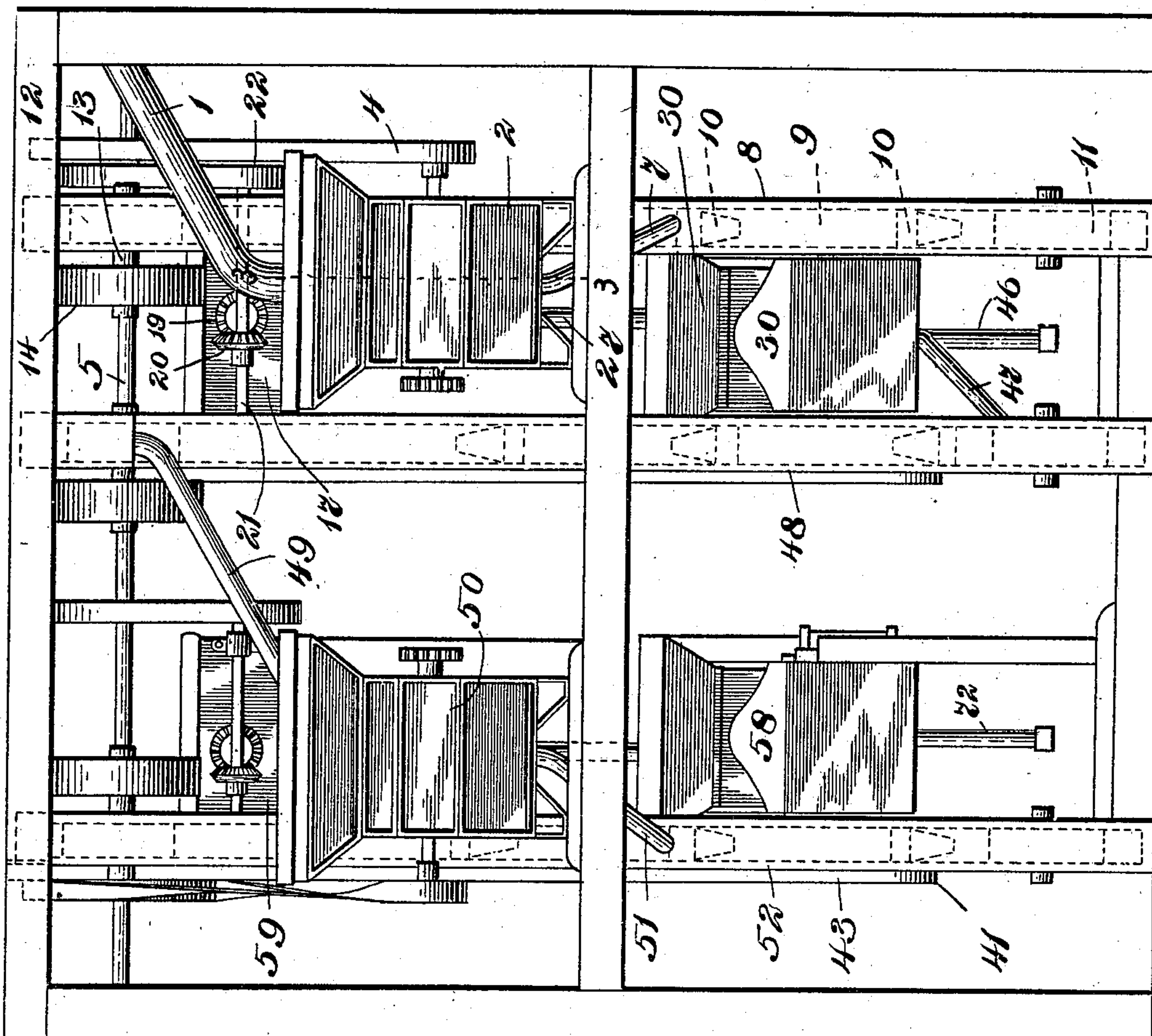


Fig. 2.

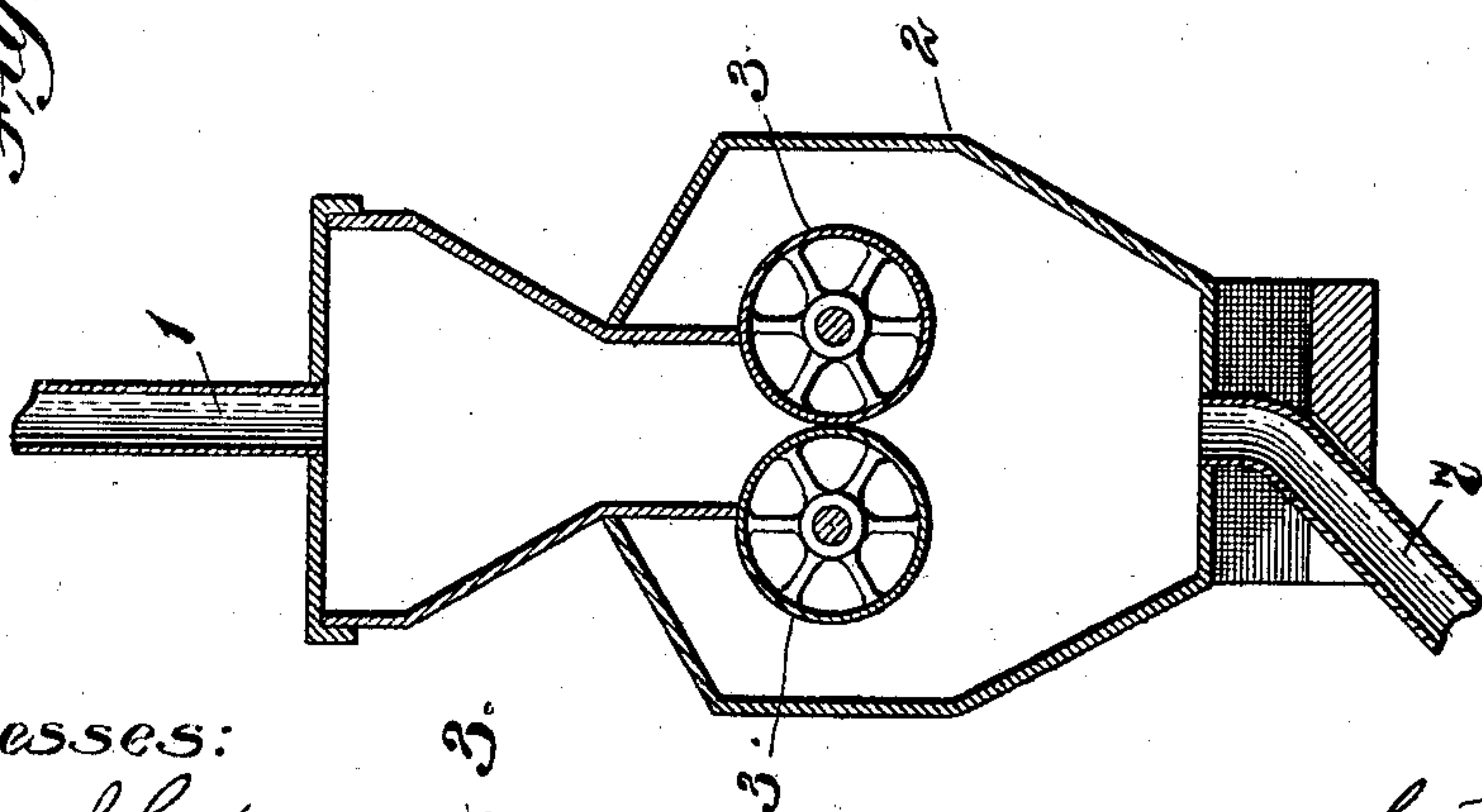


Fig. 3.

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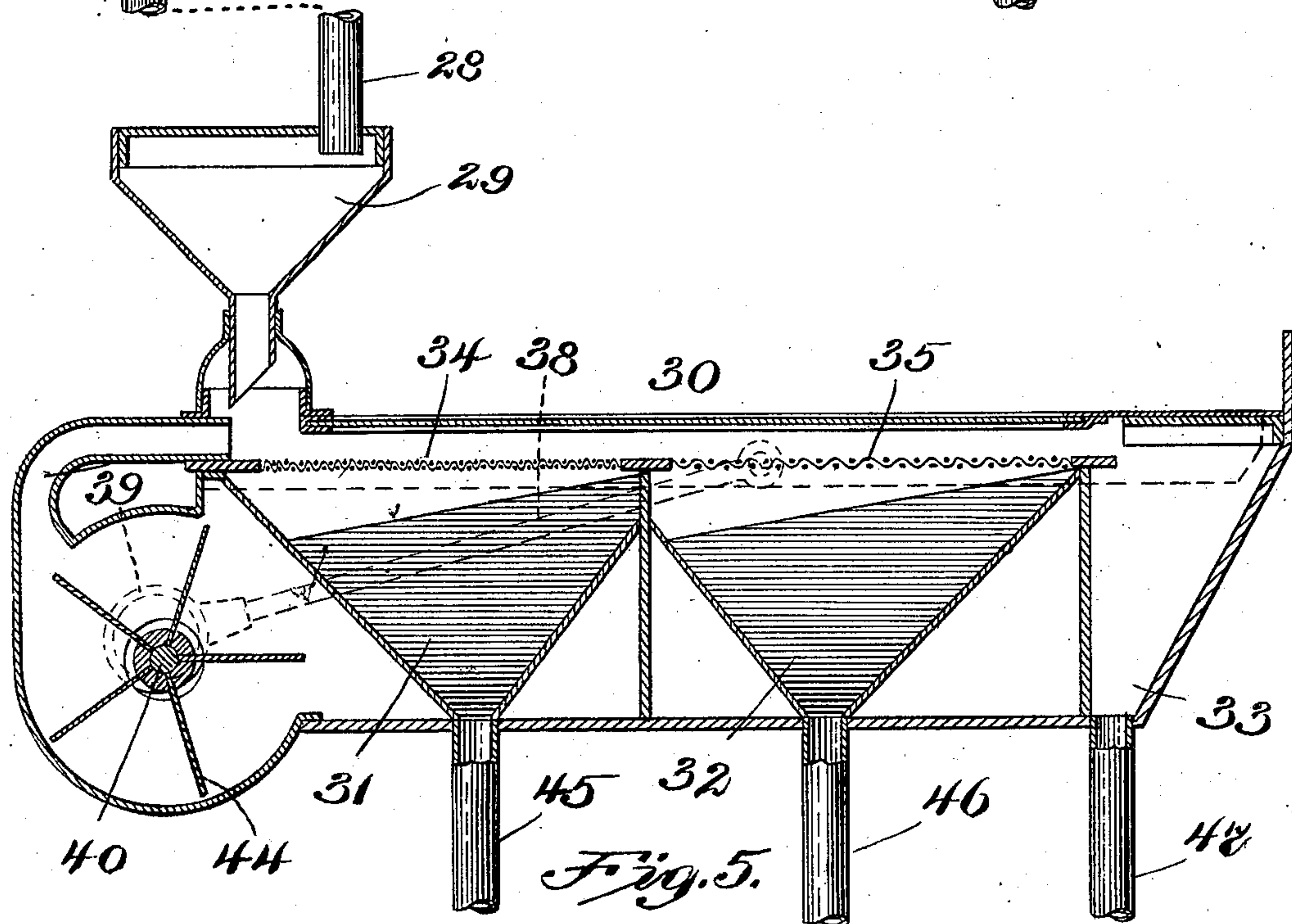
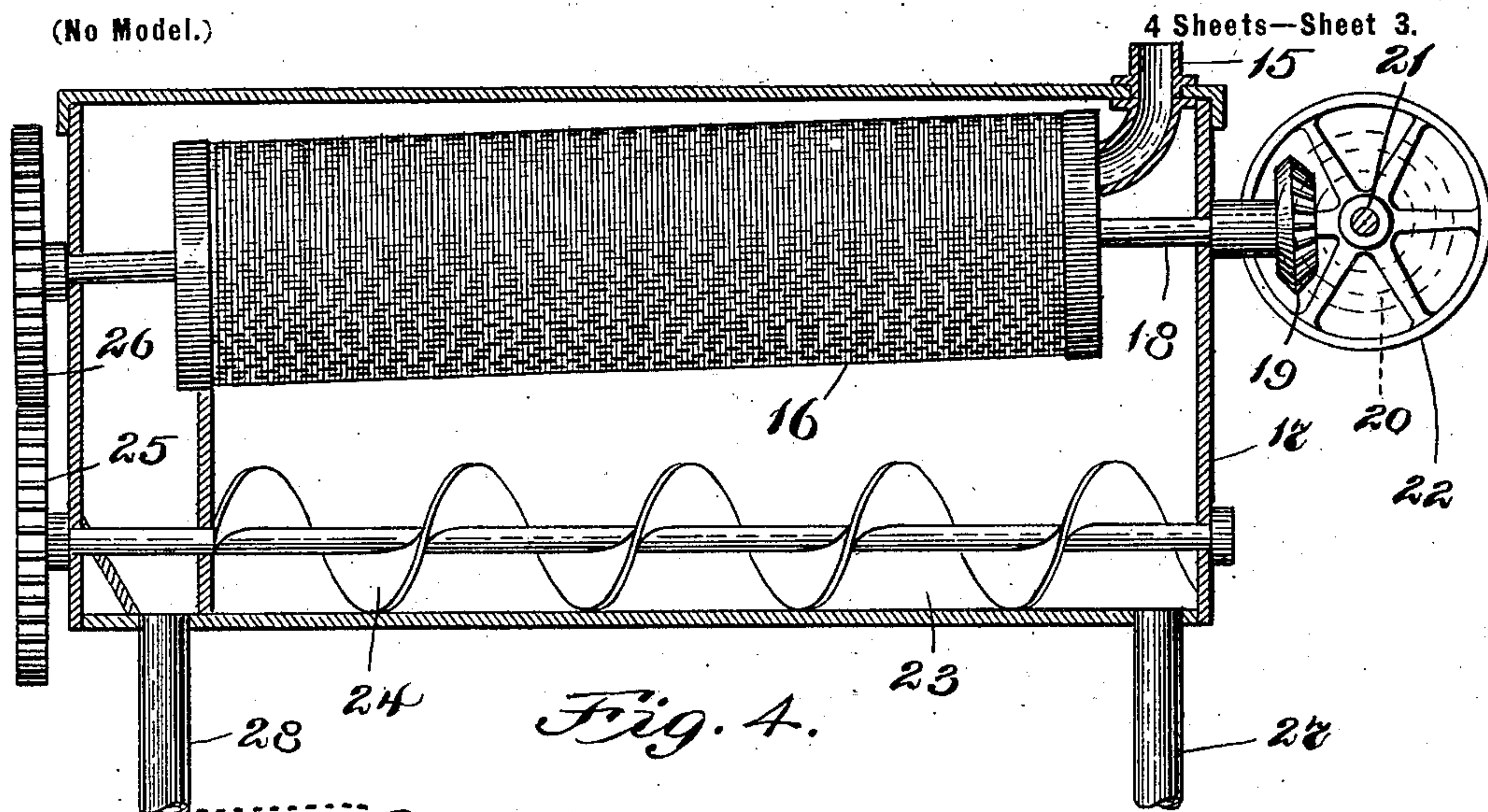
G. PIACENTINO.

FLOUR MILL.

(Application filed Sept. 20, 1901.)

(No Model.)

4 Sheets—Sheet 3.



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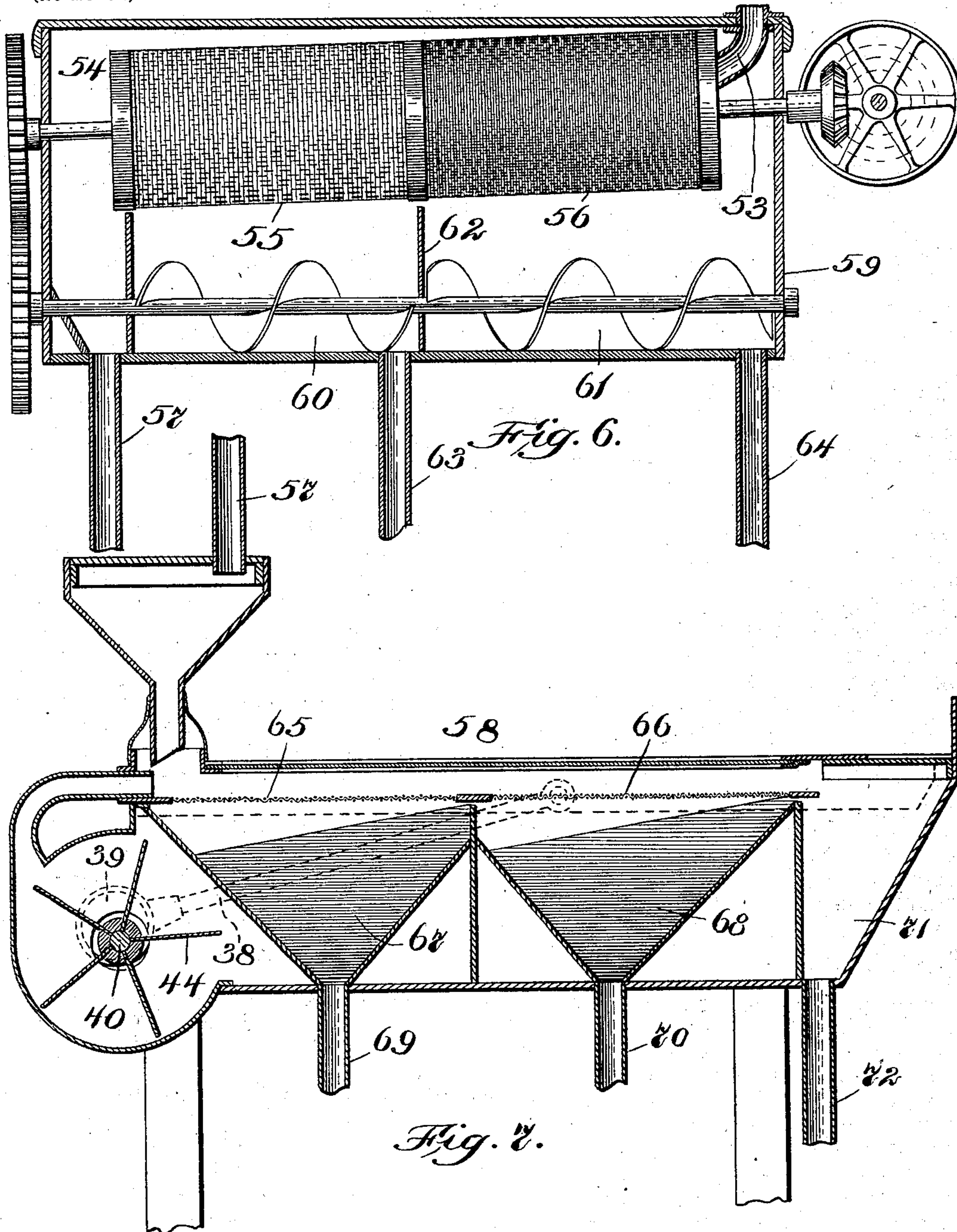


G. PIACENTINO.  
FLOUR MILL.

(Application filed Sept. 20, 1901.)

(No Model.)

4 Sheets—Sheet 4.



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Inventor:  
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# UNITED STATES PATENT OFFICE.

GIUSEPPE PIACENTINO, OF BOSTON, MASSACHUSETTS.

## FLOUR-MILL.

SPECIFICATION forming part of Letters Patent No. 698,221, dated April 22, 1902.

Application filed September 20, 1901. Serial No. 75,997. (No model.)

*To all whom it may concern:*

Be it known that I, GIUSEPPE PIACENTINO, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Flour-Mills, of which the following is a specification.

This invention has relation to milling machinery, and more particularly to machinery for disintegrating wheat into the various products which are obtained therefrom.

The invention consists in certain improvements which are illustrated upon the drawings, described in the following specification, and particularized in the appended claims.

Referring to the drawings, Figure 1 represents a side elevation of a somewhat conventional flour-mill embodying my invention. Fig. 2 represents an end elevation of the same. Fig. 3 represents a section on line 3 3 of Fig. 2. Fig. 4 represents a side elevation of the primary bolt and a sectional view of its casing. Fig. 5 represents a longitudinal section of the primary shaking-screen. Fig. 6 represents a side elevation of the secondary bolt and a sectional view of its casing. Fig. 7 represents a longitudinal section of the secondary shaking-screen.

The invention includes, as illustrated upon the drawings, a plurality of grinding-mills, bolts, and screens, arranged in proper sequence for effecting the reduction of the grain. The grain is initially fed by a spout 1 to the hopper of a primary grinding-mill 2. This primary mill is provided with rapidly-moving rolls 3 3, Fig. 3, geared together, one of the rolls receiving power by belt 4 from the main power-shaft 5. This power-shaft is journaled in bearings 6, secured to the top of the frame shown upon the drawings; but it will be understood that instead of the frame illustrated there may be the usual framework found in mills of this character.

From the lower portion of the grinding-mill 2 a spout 7 extends into the receiving-trunk 8 of an endless bucket conveyer, the endless belt 9 and buckets 10 of which are indicated by dotted lines in Fig. 2. The endless conveyer-belt passes around wheels 11 12. The shaft 13 for the wheel 12 is provided with a belt-pulley 14, from which a belt extends to a pulley on the main shaft 5. The crushed grain is elevated by the conveyer

and discharged through the spout 15, Fig. 4, into a bolt 16. This bolt is inclosed within a casing 17, and its shaft 18 is equipped with a bevel 19, intermeshing with a bevel 20 on a shaft 21, having a pulley 22, driven by a belt from the main shaft 5. The bolting-cloth of the primary bolt 16 is preferably formed of silk, and the bolted product is dropped into a chamber 23 below the bolt. In the chamber 23 there is a spiral conveyer 24, connected by gears 25 26 with the shaft 18 of the bolt. The bolted product is carried by the screw conveyer and through a spout 27 to a suitable receptacle. The end of the spout 27 may be equipped with provisions for the reception of a bag to receive the flour, this being a matter of detail which is relatively unimportant. The unbolted product or that which passes from the lower end of the bolt is delivered into a spout 28, from whence it passes to the hopper 29 of a primary shaking-screen, (indicated as a whole at 30.) The fixed casing or body of this screen is divided into three compartments 31 32 33. Over two of the compartments extends the screen proper, which consists of two sections of foraminous material 34 35, attached to a movable frame, each section being over one of the compartments 31 32, one section being of coarser mesh than the other. The screen-frame is mounted upon rocking arms 36 37, and it receives a reciprocating motion from a pitman 38, having on its end an eccentric-strap passed around an eccentric 39. The shaft 40 for the eccentric is provided with a pulley 41, upon which power is transmitted from the pulley 42 on the shaft 5 by a belt 43. On the shaft 40 is placed a fan 44, by which a current of air is forced longitudinally of the screen and directly over the screen material 34 35. The material from the bolt is delivered by the hopper 29 upon the top of the section 34 and by the shaking of the screen is advanced over the section 34 and toward the opposite end of the section 35. That portion of the product which passes through the screen into the compartments 31 and 32 is carried off through spouts 45 46 to convenient points of delivery. The material which is delivered to the compartment 33 passes from the spout 47 to a second bucket conveyer, (indicated as a whole at 48,) by



which it is elevated and delivered through a spout 49 to a secondary grinding-mill 50, essentially similar to the primary mill first described, except that it reduces the grain to a finer condition. A spout 51 leads from the secondary grinding-mill to a third bucket conveyor 52, which carries the reground material upward and delivers it through a spout 53 to a secondary bolt 54, Fig. 6, which is arranged beside the primary bolt and driven by similar mechanism. The secondary bolt is covered with silk, its covering being divided in two sections 55 and 56, whose meshes differ in point of size or fineness. The material which does not pass through the meshes of the bolt is delivered by a spout 57 to a secondary shaking-screen, (indicated as a whole at 58.) Below the secondary bolt or reel 54 the receiving portion of the casing 59 of said bolt is divided into two compartments 60 61, separated by a partition 62. Each one of the compartments is directly under one section of the bolting material, so that they receive products of different grades through the meshes of said material. Spouts 63 and 64 lead from said compartments, respectively, and deliver the material to receptacles placed conveniently for them.

The secondary shaking-screen 58 is substantially similar to the primary shaking-screen hitherto described, except that the screening material is finer and divided into two sections 65 66, one of which is coarser than the other. Below the sections 65 66 there are two compartments 67 68, from which the spouts 69 70 lead to convenient receptacles. The refuse material which drops off the end of the section 66 is delivered to the third compartment 71, from which leads the spout 72. It will thus be observed that I secure the separation or disintegration of the grain into eight different grades or products delivered, respectively, by the spouts 27, 45, 46, 63, 64, 69, 70, and 72, each being separated from the other with great accuracy.

All of the operative parts of the mill are driven from the main driving-shaft 5 by means of belts; but of course I do not limit myself to this particular arrangement, as they may be driven by any suitable power-transmitting devices arranged conveniently with relation thereto. If desired, I may pass the material resulting from the last shaking-screen to another reduction and screening operation, although for general purposes this is not necessary.

I claim—

1. An apparatus of the character described,

comprising a primary grinding-mill, a primary bolt, a conveyer for delivering the ground material from the grinding-mill to the bolt, a delivery-spout for the bolted material, a primary screening apparatus having means for dividing the screened product into different grades and having spouts for delivering the same, a secondary grinding-mill, a conveyer for delivering the unscreened material to said secondary mill, a secondary bolt having means for separating the still further reduced material into different grades, means for delivering the reduced material from the secondary grinding-mill to the secondary bolt, a secondary screening apparatus having means for separating the material into different grades and having spouts for delivering said grades of material separately, and means for delivering the unbolted material from the secondary bolt to the said secondary screening apparatus.

2. An apparatus of the character described, comprising a primary grinding-mill, a primary bolt, a conveyer for delivering the ground material from the grinding-mill to the bolt, a delivery-spout for the bolted material, a primary screening apparatus having means for dividing the screened product into different grades and having spouts for delivering the same, a secondary grinding-mill, a conveyer for delivering the unscreened material to said secondary mill, a secondary bolt consisting of a reel having its bolting-cloth divided into a plurality of sections differing as to the fineness of their meshes, means for delivering the reduced material from the secondary grinding-mill to the secondary bolt, a plurality of compartments below the sections of said reel, means for separately delivering the material from the said compartments, means for delivering the unscreened material from the secondary bolt, and a secondary screening apparatus consisting of a casing having a plurality of independent compartments with outlets therefrom, and a reciprocating screen arranged to receive the unscreened material from the secondary bolt, and having sections of foraminous material of different textures, covering all but the final compartment and adapted to deliver the unscreened material to said final compartment.

In testimony whereof I have affixed my signature in presence of witnesses.

GIUSEPPE PIACENTINO.

Witnesses:

C. F. BROWN,  
PASCAL CUPO,  
WALTER P. ABELL.