

J. J. STEHLING.

STIRRING MECHANISM.

APPLICATION FILED DEC. 23, 1907.

Patented Nov. 24, 1908.

2 SHEETS—SHEET 1.

904,655.

Fig. 1.

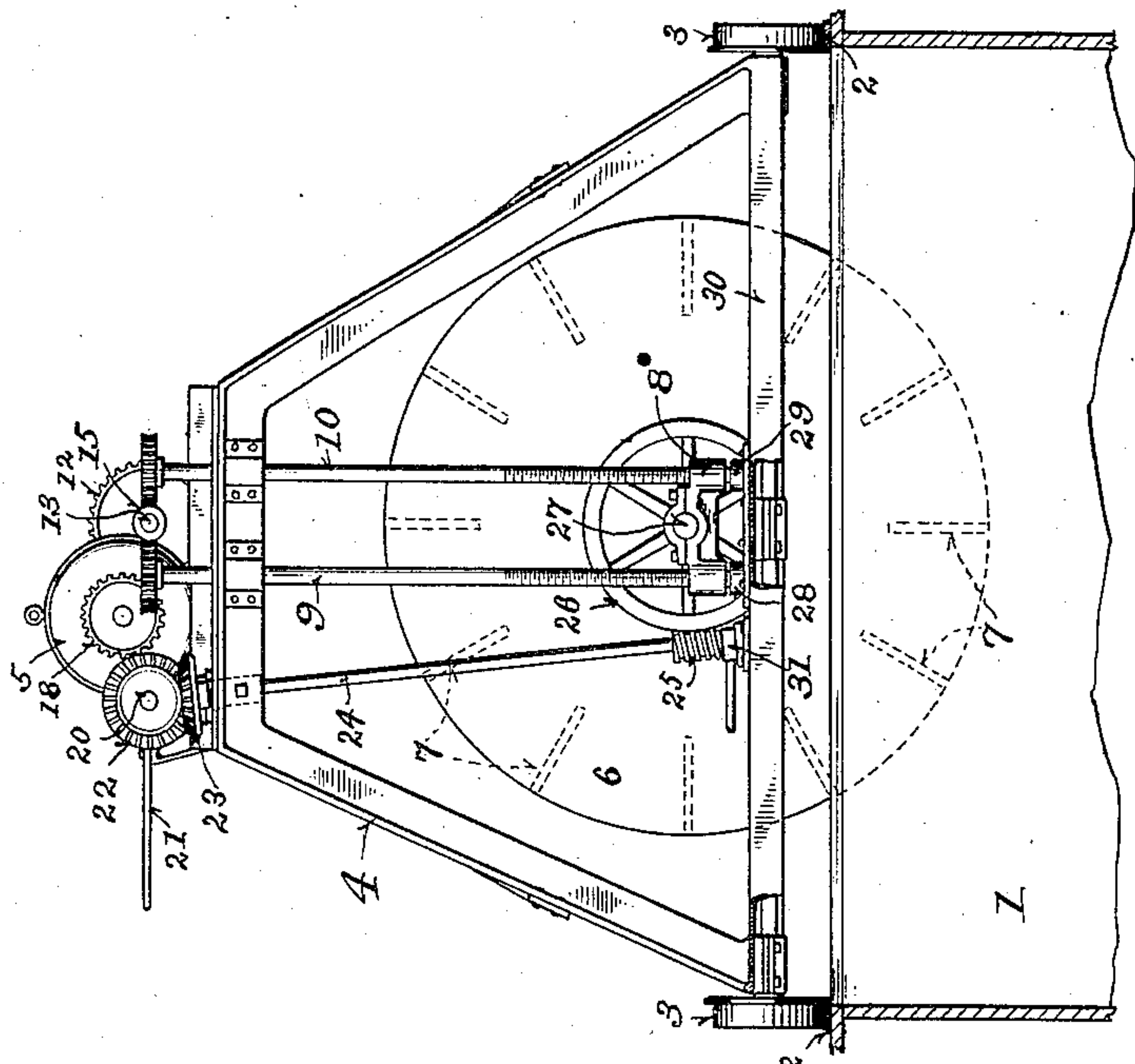
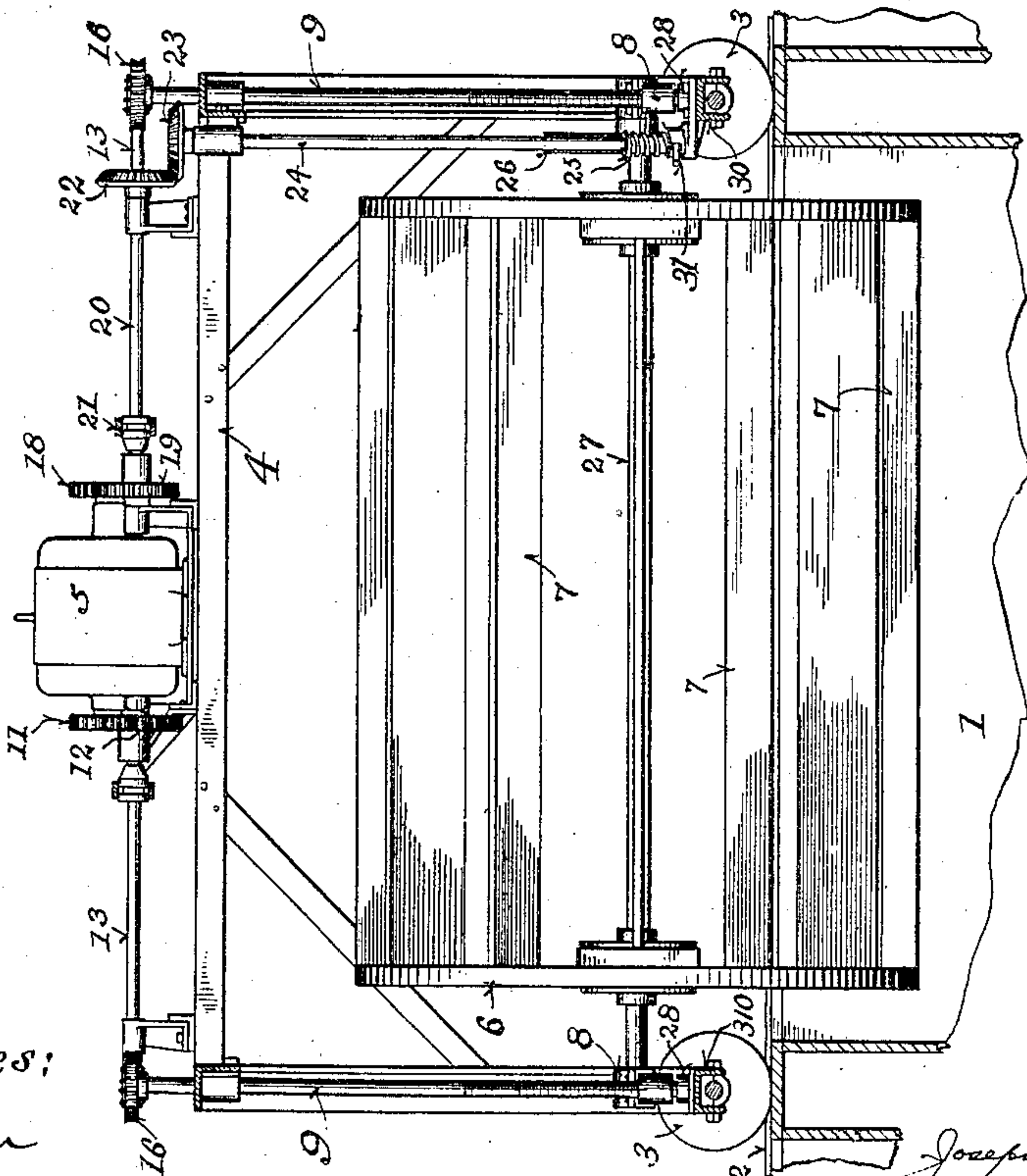


Fig. 2.



Witnesses:

T. Ed. Palm

Chas. L. Goss.

Inventor:

Joseph J. Stehling

By Hunkler Flanders, Notum & Fawcett

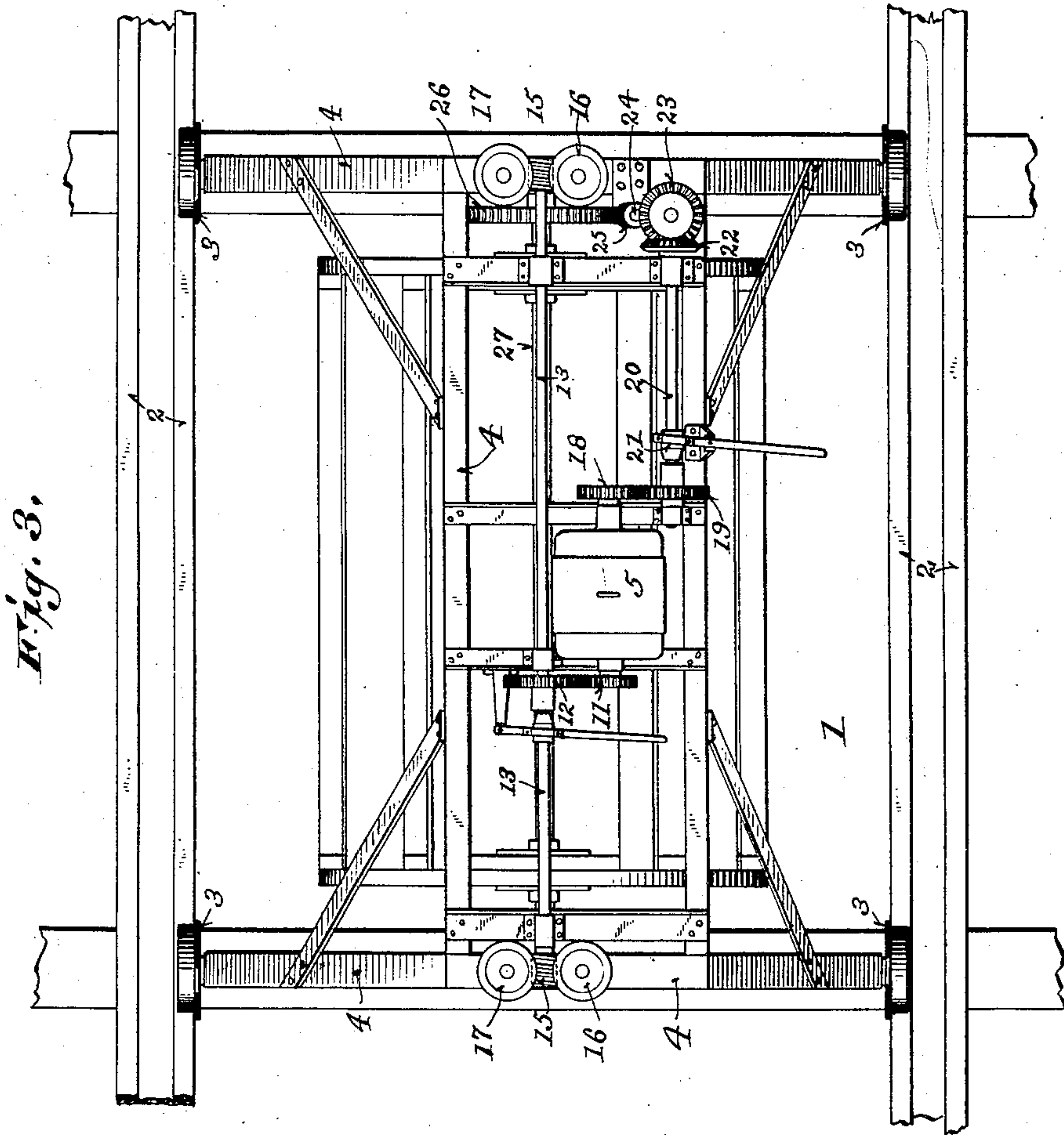
Attorneys.

904,655.

J. J. STEHLING.  
STIRRING MECHANISM.  
APPLICATION FILED DEC. 23, 1907.

Patented Nov. 24, 1908.

2 SHEETS—SHEET 2.



Witnesses:

T. Fred Palm

Chas. L. Goss.

Inventor:

Joseph J. Stehling

By Kirklin, Flanders, Pittman & Lawrence

Attorneys.



# UNITED STATES PATENT OFFICE.

JOSEPH J. STEHLING, OF MILWAUKEE, WISCONSIN.

## STIRRING MECHANISM.

No. 904,655.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed December 23, 1907. Serial No. 407,734.

*To all whom it may concern:*

Be it known that I, JOSEPH J. STEHLING, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Stirring Mechanism, of which the following is a specification, reference being had to the accompanying drawing forming a part thereof.

This invention relates to stirring mechanism for vats, tanks, etc., and is specially applicable for use in tanneries in connection with the lime vats for dehairing hides, and also in connection with the tanning vats.

It is customary in tanneries to place the hides to be dehaired in vats or tanks containing lime or other chemicals dissolved in water, and it is of great importance that the hides be moved about in the solution, or that the solution be moved about with respect to the hides, so that the hides will not be burned by the action of the lime or other chemicals employed.

When the hides are in the tanning vats it is not so necessary that the tanning solution be stirred in order to protect the hides from being injured, but the process of tanning is accelerated and the time necessary for the hides to remain either in the lime vats or in the tanning vats is very considerably reduced by agitating the hides and the solution. Before this invention, this agitation of the hides and solutions has been accomplished in different ways. The hides have been removed from one tank to another, or have been removed from the tank and replaced therein, the purpose being to move the hides in the solution or to move the solution with respect to the hides. This same result has been accomplished also by installing complicated and expensive stirring or agitating mechanism in connection with each vat or tank.

This invention provides a simple and comparatively inexpensive stirring or agitating mechanism which is capable of being used with any one of a plurality of vats or tanks, being movable from one to another, the several parts of the apparatus being so constructed and arranged that while the apparatus is very effective in operation, it is exceedingly simple in construction.

Referring to the drawings which accompany this specification and form a part thereof and on which the same reference characters are used to designate the same

parts wherever they may appear in each of the several views, Figure 1 illustrates in elevation a stirring or agitating apparatus embodying this invention; Fig. 2 is an elevation with parts in section, of the same apparatus, the view being taken at right angles to the view shown by Fig. 1; and Fig. 3 is a plan view of the apparatus.

Referring to the drawings, the numeral 1 designates a vat or tank adapted to contain a dehairing solution such as lime water or a tanning solution. These vats or tanks are shown merely conventionally. It will be understood that the ordinary practice in tanning is to fill these vats or tanks with the proper solution to within say, about six inches of their tops. Care is taken that too many hides are not placed in a single vat, the idea being to place in only such a number so that the contents of the vats including the hides can be freely moved about and agitated or stirred. It is usual to arrange these vats either in a single series or in successive series.

The numeral 2 designates rails which may be of metal or of wood, which are placed alongside of a series of vats for the wheels 3 of the agitating mechanism to travel upon, though these rails may be omitted and the wheels may travel upon the edges of the tanks or upon the floor of the building or ground adjacent the tanks.

The numeral 4 designates a frame work which may be constructed in any suitable or preferred manner, which is supported by the wheels 3 and which in turn supports an actuating mechanism or motor of any preferred type, a reversible electric motor 5, being that preferred by me and shown by the drawings. An electric current may be conducted to this motor by a trolley or in any suitable or preferred manner, and the operation of the motor may be controlled by suitable switches or controllers according to the wishes of the user of the apparatus.

The numeral 6 designates an agitator or agitating device which in the form shown, is an ordinary paddle wheel provided with paddles or blades 7, and this paddle wheel is supported by vertically movable boxes 8, which boxes are adapted to be raised and lowered carrying the paddle wheel therewith, by any suitable or preferred form of mechanism, as a screw or two pairs of screws, each pair composed of screws 9 and 10, as shown in the drawing. These screws are



actuated from the motor 5 by any suitable motion transmitting mechanism, as the gear 11, operated by the motor 5, which meshes with the gear 12, which may be clutched to the shaft 13 by the clutch 14, the shaft 13 being provided with the worms 15 which mesh with the worm wheels 16 and 17, secured to the screws 9 and 10. The screws 9 and 10 are of different hand, one being a right hand screw and the other a left hand screw, so that the paddle wheel will be raised or lowered properly by the worm wheels 16 and 17 being turned in opposite directions by the worms 15.

The paddle wheel 6 is adapted to be rotated by the motor 5 by means of any suitable or preferred motion transmitting mechanism, that being shown consisting of the gear 18, rotatable by the motor 5 meshing with the gear 19, which is loose upon the shaft 20 but can be clutched thereto by the clutch 21, said shaft 20 being provided with a bevel gear 22 meshing with a bevel gear 23 secured to the shaft 24, which carries the worm 25, adapted to mesh with the worm wheel 26, secured to the shaft 27 of the paddle wheel 6.

The lower ends of the screws 9 and 10 are rotatably retained within boxes 28 and 29, secured to the transverse members 30 and 31 of the frame 4.

The lower end of the shaft 24 to which is secured the worm 25, is suitably retained in a fixed position, so that the worm 25 properly meshes with worm wheel 26, but said worm may be disengaged from said worm wheel by operating the eccentric 31, leaving the worm wheel 26 free to be moved up with the paddle wheel 6 in order that the paddle wheel 6 may be removed from any tank and moved over another adjacent tank or one further removed.

The operation of the apparatus is as follows: The paddle wheel 6 being in an elevated position, the movable frame 4 is moved over the vat the contents of which it is desired to agitate, the motor 5 is set in operation, lowering the paddle wheel into the tank about eighteen inches, as shown by Fig. 1 of the drawings, the clutch 14 is operated to disengage gear 12 from shaft 13, the eccentric 31 is moved to throw the worm 25 into mesh with the worm wheel 26, the paddle wheel being moved slightly by hand if necessary in order to bring the worm and wheel into proper alinement for meshing. The motor 5 may be stopped during these operations, or may be allowed to run. If running, the clutch 21 is then operated to clutch gear 19 to shaft 20, and the paddle wheel or agitator is revolved by means of shaft 20, bevel gears 22 and 23, shaft 24, worm 25 and worm wheel 26.

The revolving of the paddle wheel agitates and sets in motion the solution contained in

the tank, and sufficient current is set up to move and displace the hides with the current established. This agitation may be continued for only a short time, say eight or ten minutes, but it is better that each vat be agitated a number of times each day, and with the simple portable apparatus which I have disclosed, this can be done very readily, even where the number of vats is large, as the labor required is small.

While I have shown the movable frame 4 as adapted to be pushed or hauled from vat to vat by men or animals, it is to be understood that it can be moved by any mechanical arrangement, from any available source of power, as by an endless rope, or similar contrivance. It can also be moved by means of the motor 5, by simply providing any suitable form of motion transmitting mechanism, as gears and shafting, for transmitting motion from the gears 11 and 18 to one or more of the wheels 3, clutch mechanism similar to the clutch mechanisms 14 and 21 being used to connect the motor 5 with the driving wheel or wheels, or to disconnect it therefrom.

While specific means, as screws, gears, worms, &c. are specifically shown by the drawings and described by the specification, for raising and lowering the paddle wheel or agitating device and for actuating said agitating device, it is to be understood that all equivalents of the actual mechanisms shown and described, adapted to perform the same functions and effect the same results as the specific forms of apparatus shown and described, are included by and are intended to be covered by the term "means" as used in the claims.

What I claim is:

1. The combination with a movable frame, of a paddle wheel supported thereby, means for raising and lowering said paddle wheel with respect to said movable frame, and means for revolving said paddle wheel.

2. The combination with a movable frame, of a paddle wheel, means for raising and lowering said paddle wheel, said paddle wheel being provided with a worm wheel adapted to revolve it, a worm for revolving said worm wheel and means to disengage said worm from said worm wheel, or to engage it therewith, so that said paddle wheel with its worm wheel may be raised or lowered.

3. The combination with a movable frame, of a paddle wheel supported thereby, right and left handed screws supporting said paddle wheel, means for rotating said screws to raise and to lower said paddle wheel, and means for revolving said paddle wheel.

4. The combination with a movable frame, of a paddle wheel supported thereby, screws supporting said paddle wheel and adapted to raise and lower the same, a worm wheel and worm for revolving said paddle wheel, and



an eccentric to engage said worm with said worm wheel or disengage it therefrom.

- 5 5. The combination with a movable frame, of screws supported thereby, a paddle wheel supported by said screws, a motor for rotating said screws to raise and lower said paddle wheel, and means for revolving said paddle wheel adapted to be actuated by said motor.
- 10 6. The combination with a movable frame, of a pair of screws arranged vertically at each side of said frame, one screw of each pair being right handed and the other screw of each pair being left handed, each of said
- 15 screws being provided with a worm wheel, a shaft provided with two worms, one of said worms meshing with the worm wheels on the two screws at one side of the frame, movable boxes engaged with said screws, a shaft
- 20 supported by said boxes and provided with

a paddle wheel and a worm wheel, a worm for rotating said paddle wheel, an eccentric for engaging said worm with the worm wheel upon said shaft or disengaging it therefrom, a motor and two clutches, one of 25 which is adapted to engage said motor with the worm and worm wheels for revolving said paddle wheel or to disengage said motor therefrom, the other of said clutches being adapted to engage said motor with the worms 30 and worm wheels for raising or lowering said boxes and said shaft or to disengage it therefrom.

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

JOSEPH J. STEHLING.

Witnesses:

CHAS. L. Goss,  
ALICE E. Goss.