No. 874,252. PATENTED DEC. 17, 1907.

P. SCHWIETE.

MORTAR MAKING MACHINE.

APPLICATION FILED APR. 25, 1906.

2 SHEETS—SHEET 1.

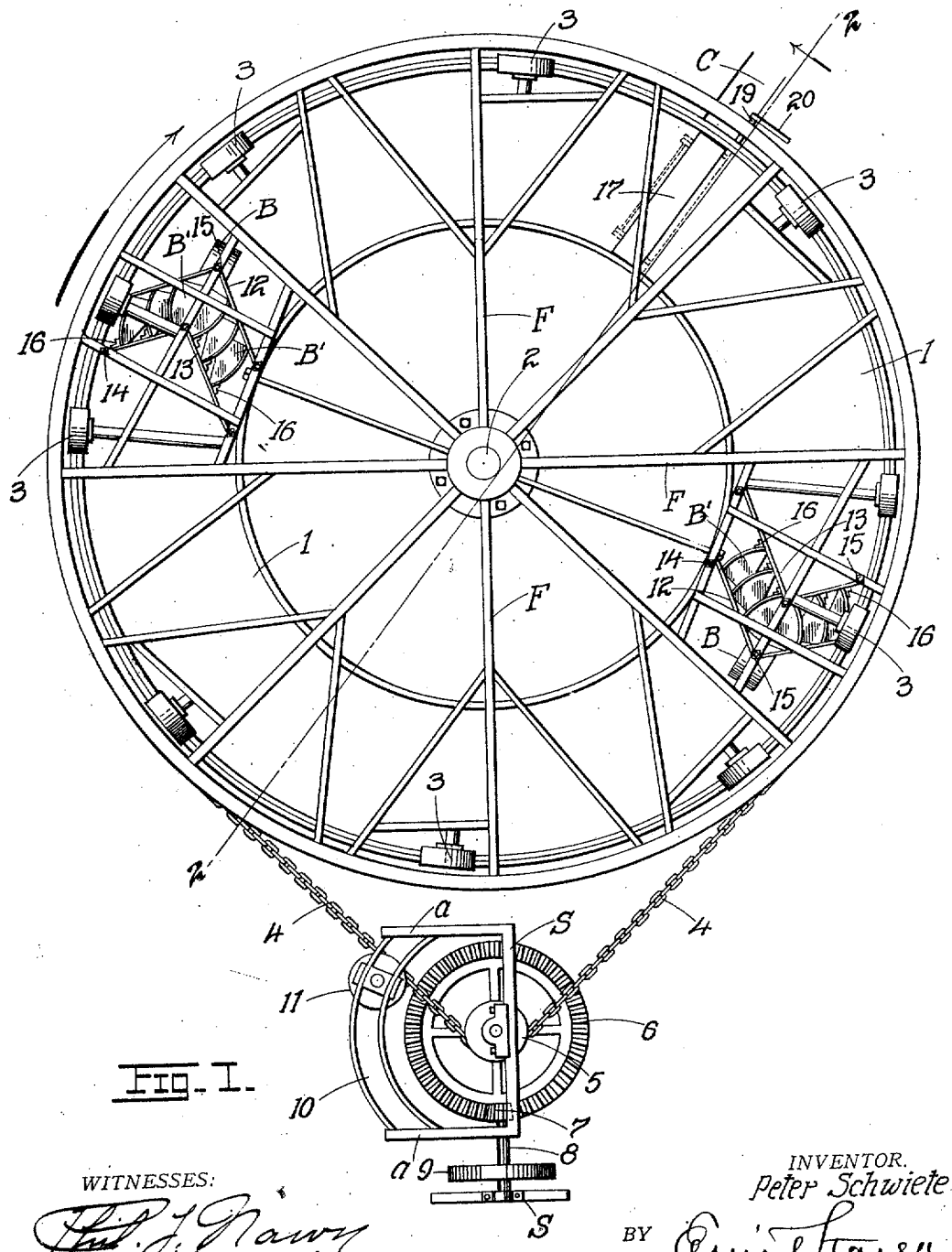


FIG. I.

WITNESSES:

M. D. Whitcomb

INVENTOR.
Peter Schwiete

BY

ATTORNEY.

No. 874,252. PATENTED DEC. 17, 1907.

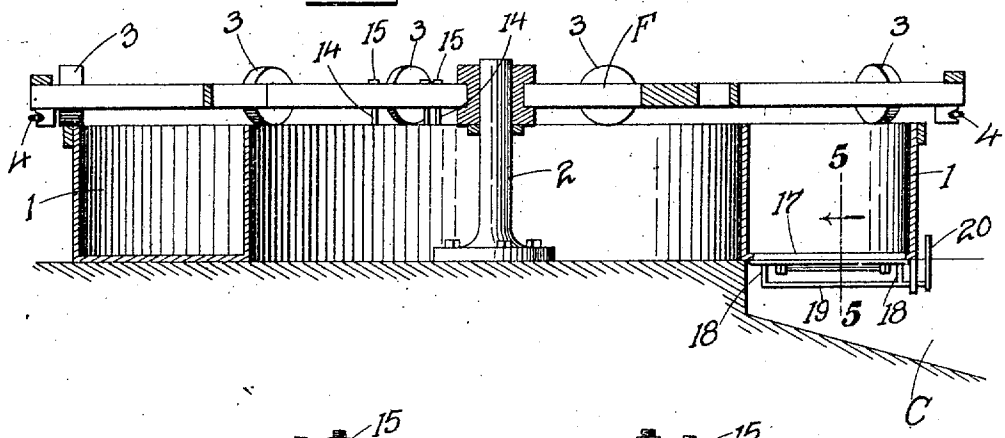
P. SCHWIETE.

MORTAR MAKING MACHINE.

APPLICATION FILED APR. 25, 1906.

2 SHEETS—SHEET 2.

Fig. 2.



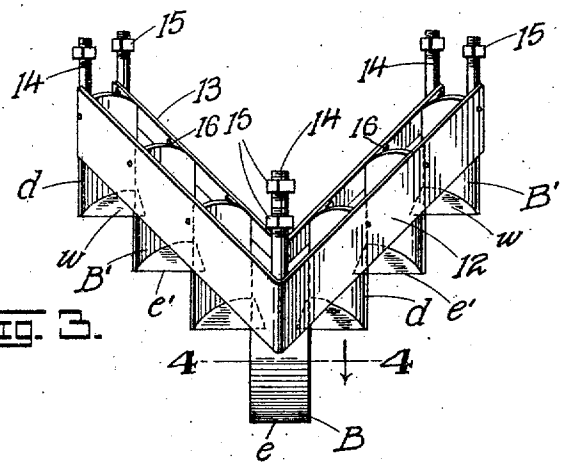


Fig. 3.

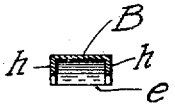


Fig. 4.

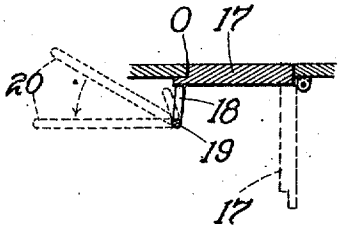


Fig. 5.

WITNESSES:

Phil. J. Dawy

M. D. Whitcomb

INVENTOR.

Peter Schwiete

BY Ernest Starr

ATTORNEY.

UNITED STATES PATENT OFFICE.

PETER SCHWIETE, OF ST. LOUIS, MISSOURI.

MORTAR-MAKING MACHINE.

No. 874,252. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed April 25, 1906. Serial No. 313,686.

To all whom it may concern:

Be it known that I, PETER SCHWIETE, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Mortar-Making Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention has relation to improvements in mortar making machines and consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a top plan of my machine; Fig. 2 is a vertical section on the line 2—2 of Fig. 1; Fig. 3 is a perspective of the blades or shovels and the bent plates supporting the same; Fig. 4 is a cross section of the front blade or cutter on the line 4—4 of Fig. 3; and Fig. 5 is a cross section on the line 5—5 of Fig. 2 taken through the door leading to the dump-chute.

The object of my invention is to construct a machine which will mechanically mix the constituents entering into the composition of any given species of mortar (or cement) special importance being attached to the specific disposition and construction of the blades or shovels by which the ingredients are churned, and mixed together.

A further object is to produce a machine which for a given number and size of blades will possess a maximum efficiency.

In detail the invention may be described as follows:

Referring to the drawings, 1 is an annular trough or box in which the ingredients are placed and in which the mixing takes place. Disposed at the center of the concentric circles defining the inner and outer walls of the trough is a post 2 extending to a height slightly above the plane corresponding to the height of the trough, the upper end of the post serving as a bearing for the rotatable horizontal frame F superposed above the trough, said frame being provided at intervals with rollers 3 traveling along the upper edge of the outer wall of the trough. The frame is composed of an outer circular rim, a central hub and intermediate bracing as shown, though I attach no importance to the details of its construction, as the same may be built in any mechanical manner, all depending on the discretion of the builder. Rotation is imparted to the frame by means of a driving sprocket chain 4 passing respectively about the periphery of the frame and about a pulley 5 mounted to revolve horizontally in a standard or bracket S, the chain being held in contact with the frame periphery by any suitable mechanical means not herein claimed. The pulley 5 is carried by the vertical shaft or spindle of a large bevel gear wheel 6 mounted in the standard S, the teeth whereof mesh with a bevel pinion 7 at the inner end of the main driveshaft 8 also mounted in the standard S, the shaft being provided with a belt pulley 9 over which passes a belt (not shown) to any suitable source of power (not shown). The standard S is provided with terminal parallel arms *a a* between which is disposed a curved track 10 for the support of the adjustable bearing of an idler pulley or belt tightener 11, the mechanical details of these features being immaterial since they are well understood in the art, and the parts are only conventionally shown herein.

The efficiency of the present machine is due to the specific construction and disposition of the blades or shovels whose construction I shall now describe: The several blades are respectively secured to a front plate 12 of substantially V-shaped design, and to a bent plate 13 also V-shaped, the legs of the respective plates being substantially parallel to one another. Both plates are provided at convenient points with screw-bolts 14, by which they can be suspended from the frame into the trough, suitable nuts 15 retaining them in position. Suitable members, plates, or braces enter into the construction of the frame F as shown which will receive the bolts 14, and it is of no special consequence how the frame F shall be built, as long as it is stiff, and light. With the exception of the first blade or cutter B, which is virtually fastened at the apex of the plate 12, and projects a considerable distance in front of the plate, the remaining blades or followers B′ are secured in position in the space between the plates 12 and 13, and preferably by means of angle-brackets 16 distributed where most needed. I do not however lay any stress on this or any other mode of fastening the blades, the important feature being their form and relative specific disposition. The front blade B of each series (there being two series located at opposite ends of

the diameter of the frame F) has a bottom cutting edge *e* and rearwardly deflected wings *h*, and as a blade, is inclined to the horizontal that is to say, it dips downwardly from the plate 12 to the bottom of the trough, the lower edge of said plate 12 being removed a suitable distance above said bottom. The mortar mixture is thus cut by the blade from the bottom of the trough, then carried upward along the blade, when, encountering the diverging walls of the plate 12 the mixture is deflected outwardly after which, in dropping back to its lowest position and into the path of the "follower" blades B′, it is seized by the advancing edges of said blades, the material being forced to climb the vertical walls of said blades set in adjacent relation to one another, the climbing of the material resulting in turning it over or imparting thereto a revolving movement so that all the ingredients thereof become thoroughly intermixed. The blades B′, like the blade B of course extend below the lower edge of the plate 12, and like the blade B, they are provided with a cutting edge *e′* which constitutes the front edge of the horizontal wing *w* or leg of the blade, said horizontal wing gradually turning and merging with the vertical wing *d* whose upper horizontal edge follows an outwardly convex curve, or away from the apex of the plate, as best shown in Fig. 1 of the drawings. The contiguity of the blades B′ results in the formation of a series of open ended passages for the travel of the mixture, the material being thoroughly churned and mixed in these passages. The blades B′ may be said to be disposed relatively to one another along what may be considered the equal sides of an isosceles triangle, the legs of the plate 12 being substantially equal. They may be considered too, as disposed in converging sets, the cutting blade or scraper B being located at the point of convergence, or angle opposite to the third side of the triangle, which itself is disposed along the radius of the rotatable frame F.

The mixture being once thoroughly effected, it is allowed to pass into a dump-chute C whence it is conveyed to any suitable point of consumption. The opening O at the bottom of the trough leading to the chute C is normally kept closed by a hinged door 17 swinging downward when released. It is kept normally closed by the arms 18 at opposite ends of a rock-shaft 19 mounted adjacent to the opening O, and having a terminal lever 20 by which the shaft may be rocked to locking or releasing position. No claim is made to this detail as it is quite immaterial how the door is locked or opened, or what the nature or character of the door may be.

Rotation imparted to the shaft 8, is communicated to the frame F as clearly obvious from the gearing referred to. The direction of rotation of course is as indicated by the curved arrow in Fig. 1. When a batch of material is mixed, the door 17 is allowed to drop to open position (dotted lines Fig. 5), allowing the mortar to run through the chute C to any point of consumption.

Having described my invention, what I claim is:

1. In a mortar making machine, the combination of a suitable annular trough, with a frame rotatable above the same, blades connected to and depending from the frame into the trough, and disposed in two sets converging toward a point between the vertical bounding walls of the trough, and a cutter blade located in advance of the angle of convergence of the sets of blades aforesaid, substantially as set forth.

2. In a mortar making machine, the combination of an annular trough, with a rotatable frame superposed above the same, blades connected to and depending from the frame into the trough and disposed in sets converging along two sides of a triangle whose third side is disposed substantially along the radius of the rotatable frame, and a cutter blade in advance of the angle of convergence of the sets of blades aforesaid, substantially as set forth.

3. In a mortar making machine, the combination of an annular trough, with a rotatable frame superposed above the same, blades connected to and depending from the frame into the trough and disposed in sets converging along two sides of an isosceles triangle whose third side lies across the width of the trough, and a downwardly inclined blade independent of the converging sets located at and projecting a suitable distance in front of the angle of the converging sets, substantially as set forth.

4. In a mortar making machine, the combination of an annular trough, with a rotatable frame superposed above the same, a V-shaped apron carried by the frame the legs of the apron extending from the inner and outer walls of the trough and meeting at a point or apex intermediate the said walls, a blade connected to and projecting from the apron in front of the apex thereof, and blades disposed behind each leg of the apron, substantially as set forth.

5. In a mortar making machine, the combination of an annular trough, with a rotatable frame superposed above the same, a V-shaped apron carried by the frame, the legs of the apron being substantially equal in length and spanning the space between the inner and outer walls of the trough, the apex of the legs meeting at the medial line of the trough, a cutting blade connected to the apron and projecting in front of the apex thereof and having a cutting edge bearing against the bottom of the trough blades or

followers disposed behind each leg of the apron and having horizontal wings or members provided with front cutting edges, and with upwardly deflected or vertical wings convexed from the apex of the apron, whereby there is formed a curved open ended passage-way between each pair of followers and the material operated on is subjected to a turning or revolving motion and the ingredients thoroughly mixed, substantially as set forth.

Signed at the city of St. Louis State of Missouri this 18th day of April A. D. 1906.

PETER SCHWIETE.

Witnesses:
LEWIS C. FRY,
MARK MINZEY.