F. A. WEGNER.

GRAIN CONDITIONER.

APPLICATION FILED JUNE 9, 1913.

1,139,610. Patented May 18, 1915.

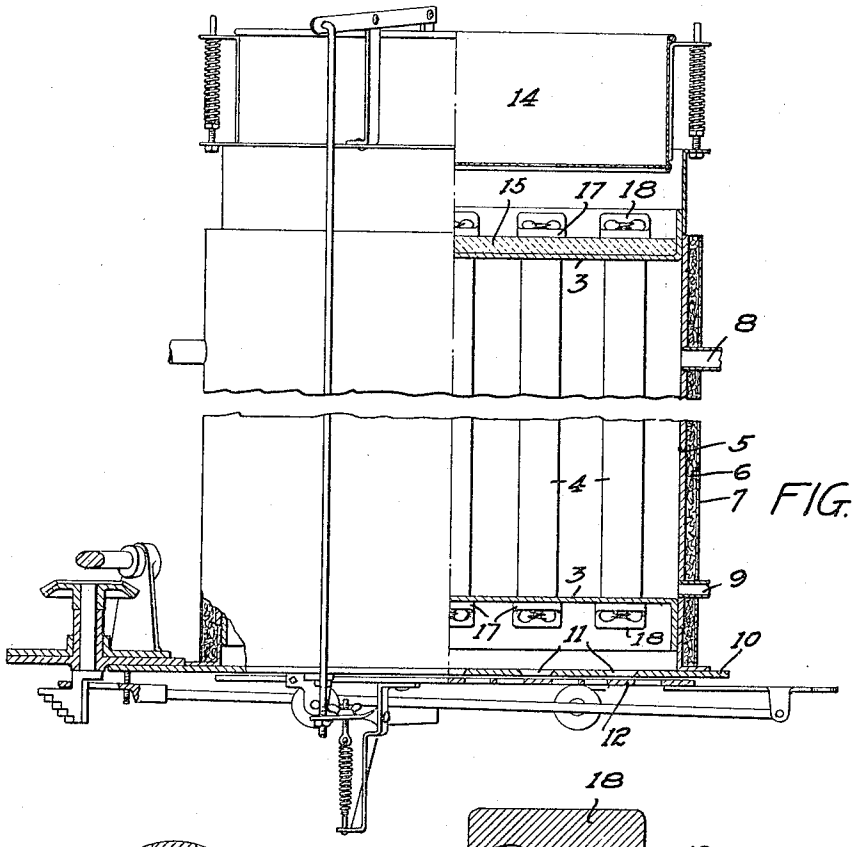

FIG. 1.

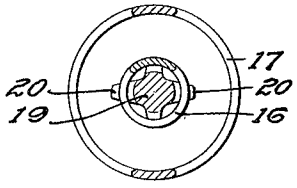

FIG. 4.

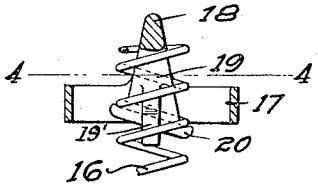

FIG. 3.

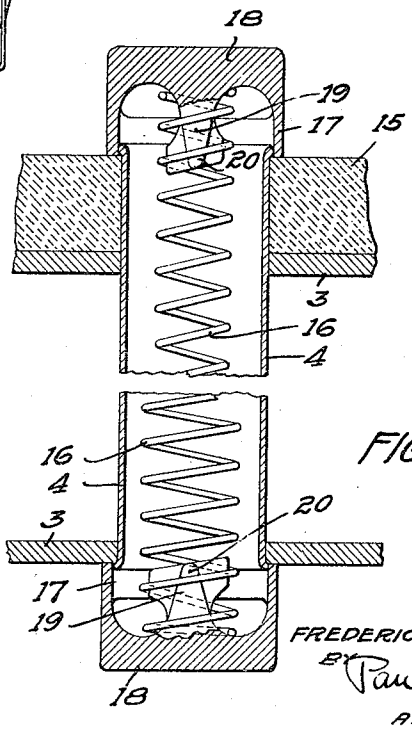

FIG. 2.

WITNESSES

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GRAIN-CONDITIONER.

1,139,610. Specification of Letters Patent. Patented May 18, 1915.

Application filed June 9, 1913. Serial No. 772,652.

To all whom it may concern:

Be it known that I, FREDERICK A. WEGNER, of Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Grain-Conditioners, of which the following is a specification.

This invention relates particularly to improvements in grain conditioners, and the object of the invention is to provide a machine by means of which grain may be rapidly conditioned while passing continuously through the machine by gravity.

The invention consists generally in the constructions and combinations hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is an elevation and partial section of a machine embodying my invention, Fig. 2 is a vertical section through one of the tubes of the conditioner, Fig. 3 is a section through the centering cap at the upper portion of a conditioning tube, on a plane at right angles to the plane of Fig. 2, Fig. 4 is a longitudinal section on line 4—4 of Fig. 3.

I employ in this machine a heating chamber consisting of a suitable frame upon which is located a heater consisting of upper and lower heads 3, 3, tubes 4 passing through the heater and having their ends secured in said heads and a shell 5 preferably of cylindrical form into which the heads are set and secured, said shell being preferably surrounded by a suitable jacket 7 and heat retaining packing 6. Steam is admitted to the heating chamber through a suitable pipe 8 and the water of condensation may be drawn off through a pipe 9.

The heating chamber as here shown is arranged upon a suitable plate 10 having openings 11 located one below the end of each tube 4, and a regulating slide 12 is located below the plate 10. A shallow chamber is preferably formed between the lower head 3 of the heating chamber and the plate 10. Above the heating chamber is a hopper 14 which is preferably yieldingly supported and is connected with suitable means that controls the position of the slide 12.

In my application filed April 5, 1913, Serial No. 759,137, I have illustrated and described the hopper herein shown and also the means for automatically controlling the position of the slide 12 by the weight of the grain in the hopper, and while I have shown the parts in the drawings of this application, I consider it unnecessary to describe the same herein.

The tubes 4 each preferably project a short distance beyond the outer face of the upper head 3, and is surrounded by concrete (see Fig. 2). The lower ends of the tubes also extend beyond the outer face of the lower head 3. Arranged in each tube 4 is a spirally coiled wire 16. The diameter of this coil is preferably about one-half the diameter of the tube, and the upper portion of the wire is of less diameter than the lower portion (see Fig. 2). At the lower end of each tube is a centering support consisting preferably of a casting having a flange or ring 17 that surrounds the projecting end of the tube 4, a central cross bar 18 and a projecting lug 19 having outwardly projecting bosses 20. At the top of each tube 4 is a similar centering cap having a ring 17, a cross bar 18, a lug 19 and projecting bosses 20. The bosses 20 on each lug are preferably arranged one slightly above the other as shown in Fig. 3 of the drawings so as to conform to the pitch of the spirally coiled wire. The lugs 19 are also provided with the projections 19′, which bear against the inner circumference of the coil, and prevent any sidewise motion of said coil, thereby keeping the coil in the center of the tube.

The ends of the spirally coiled wires 16 are engaged with the lugs 19 and bosses 20 by screwing said lugs and bosses into the end of the coil as clearly shown in Fig. 3 of the drawings. The rings 17 are brought over the projecting ends of the tubes 4 and the spirally coiled wire is thus centered in the tube and is firmly held therein while there is upon each side of the cross bar 18 a substantially semi-circular opening nearly one-half the size of the area of the pipe through which the grain from the hopper above may flow freely into and through the tube 4.

I find that in operation the space within the spirally coiled wire will completely fill with grain and that this grain will remain therein without any substantial change as long as other grain is flowing through the tube, but when the flow of grain to the machine ceases the grain between the circumference of the coil and the inner wall of the

tube will first run out and then the grain within the coil will also run out. I also find that with this spirally coiled core centrally arranged in the tube there is no danger of clogging the grain in the tube. Many of the kernels of grain project through the coil and it seems impossible for the grain to arch over or bridge across between the coil and the inner wall of the tube. This is probably due to the fact that these projecting ends of the kernels of grain within the spiral are also spirally arranged and the kernels of grain do not lodge thereon but slide off and pass down the tube. It is also important, as I find from actual practice, to have the ends of the spiral centered and held by a cap having a single diametrically arranged cross bar with a free space on each side thereof thereby preventing the grain and short straws from catching and clogging up the openings through the cap.

I do not limit myself to the details of construction as the same may be varied in many particulars without departing from my invention.

I claim as my invention:

1. The combination, in a grain heater, with a heating chamber, provided with heads and an inclosing shell, of tubes extending through said heads, open caps arranged on the projecting ends of said tubes, and cores arranged in said tubes and consisting of spirally coiled wires having their ends engaging said caps.

2. The combination, in a grain heater, with a heating chamber, of heating tubes extending therethrough and having ends projecting beyond the walls of said chamber, open caps fitting over the ends of said tubes, and a spirally coiled wire core in each tube having its ends engaging said caps.

3. The combination, in a grain heater, with a heating chamber, of tubes extending therethrough and having ends projecting beyond the walls of said chamber, open caps each provided with a ring engaging the projecting end of a tube, and with a diametrically arranged cross bar, and an inwardly projecting lug, and a core formed of a spirally coiled wire arranged in each tube with its ends engaging the lugs on said caps.

4. The combination, in a grain heater, with a heating chamber, provided with heating tubes, of a spirally coiled wire core arranged in each tube, and an open cap at the end of each tube, engaging the ends of said core and centering the same in said tube.

5. The combination, in a grain heater, with a heating chamber, of a tube extending therethrough, an open cap arranged on each end of said tube, and a spirally coiled wire core arranged in said tube and having its ends engaging said caps.

6. The combination, with the tube 4, of the caps arranged over the ends of said tubes and provided with the diametrically arranged cross bars 18 and the inwardly projecting lugs 19 having lateral bosses 20, and the spirally coiled wire core arranged in said tube and having its ends engaging said lugs and bosses.

In witness whereof, I have hereunto set my hand this 25th day of March 1913.

FREDERICK A. WEGNER.

Witnesses:
EDWARD A. PAUL,
GENEVIEVE E. SORENSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."