

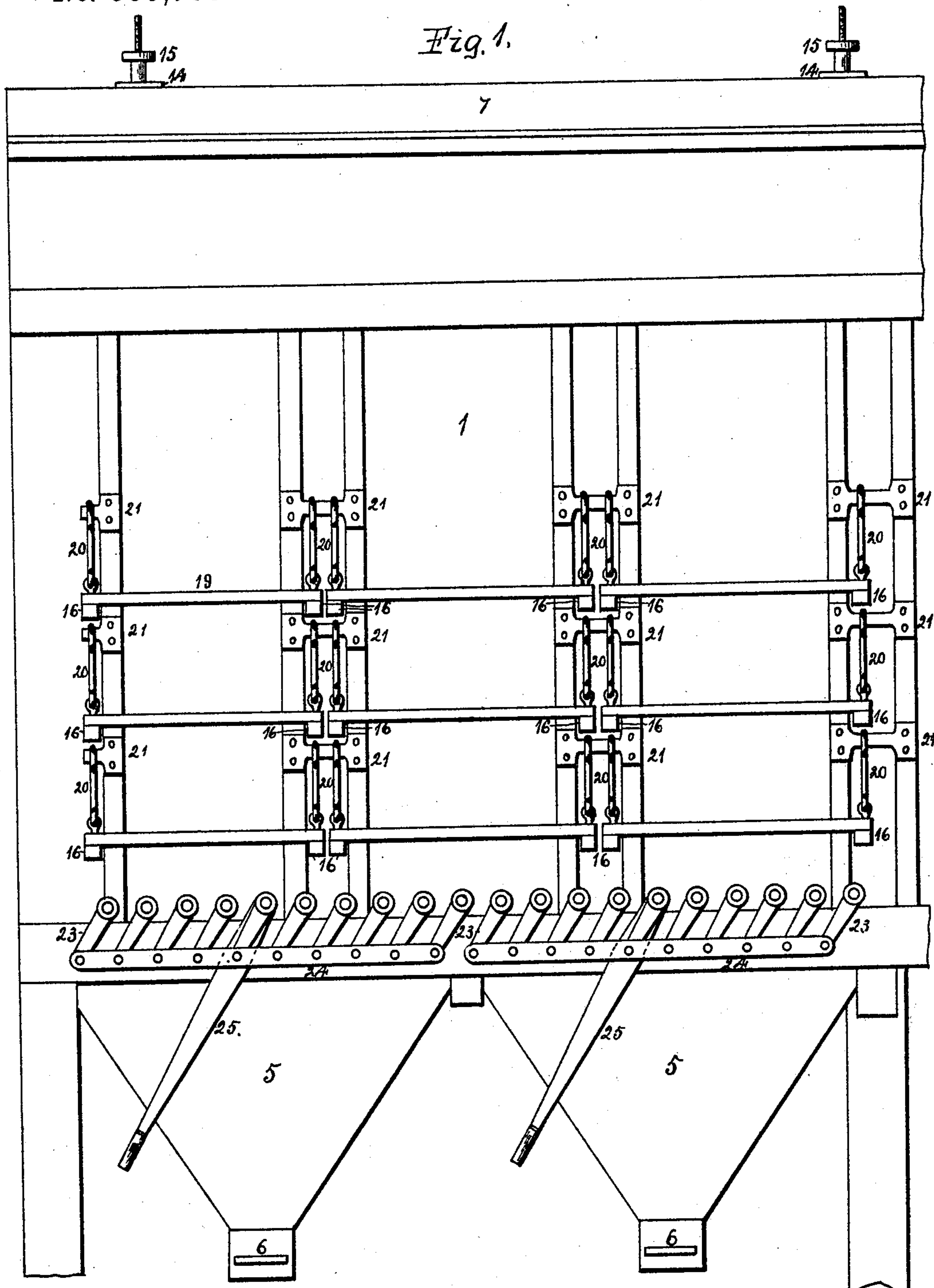
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L. P. BAUER.
STARCH DRIER.

No. 583,783.

Patented June 1, 1897.



Witnesses:
E. Bechel.
G. Clark

Inventor:
Louis P. Bauer
By A. O. Bechel
Atty.

(No Model.)

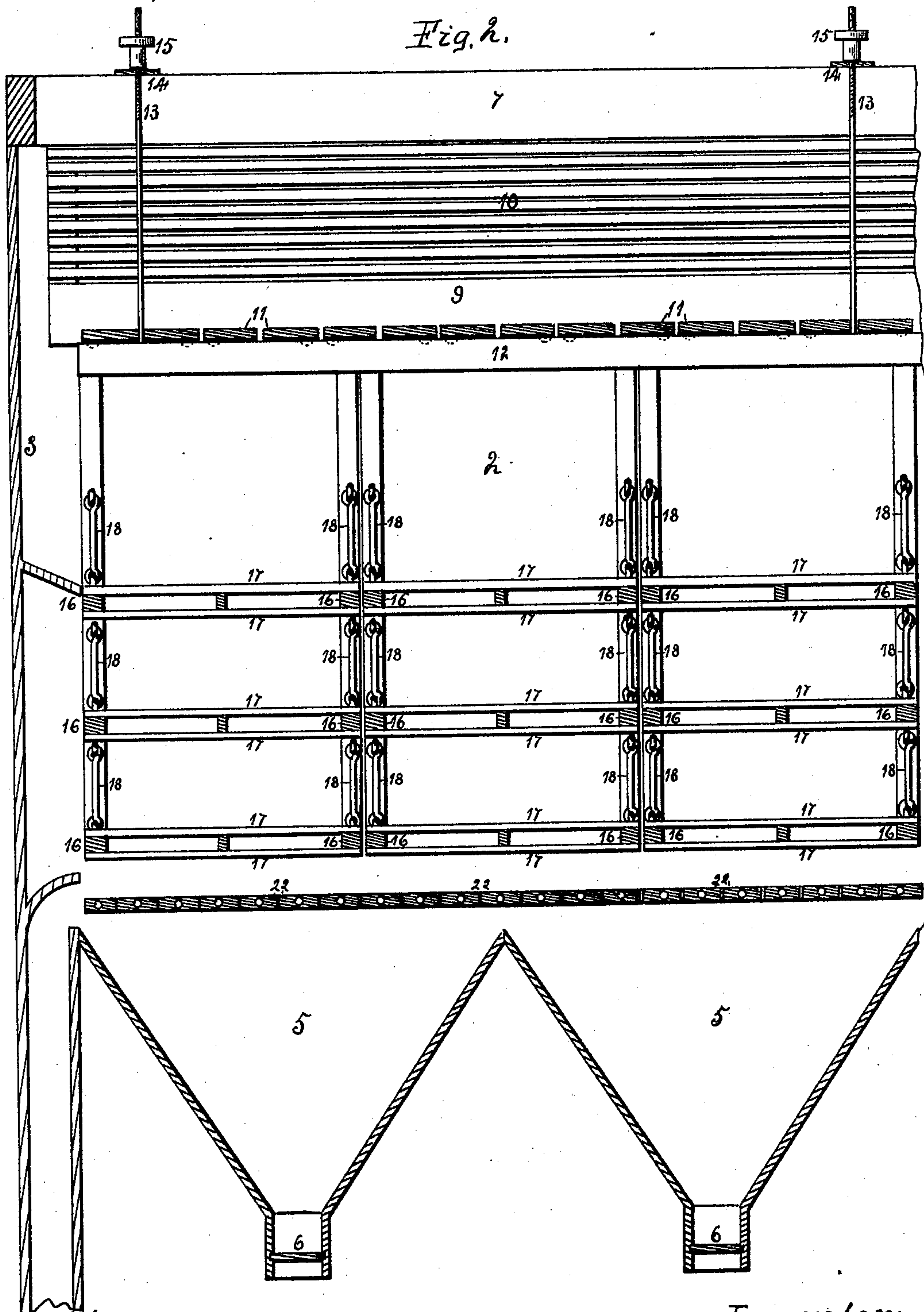
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Fig. 2.



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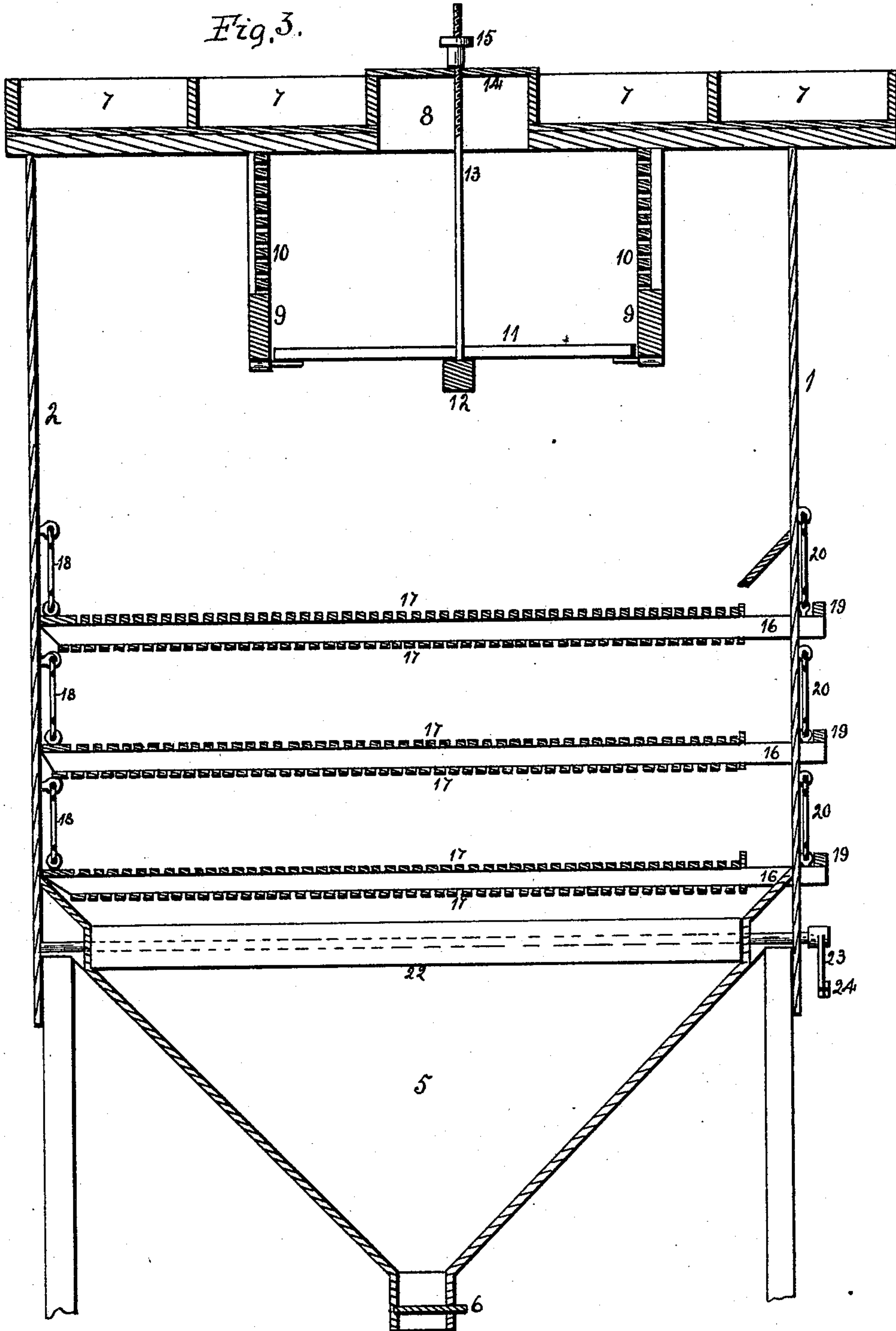
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Fig. 3.



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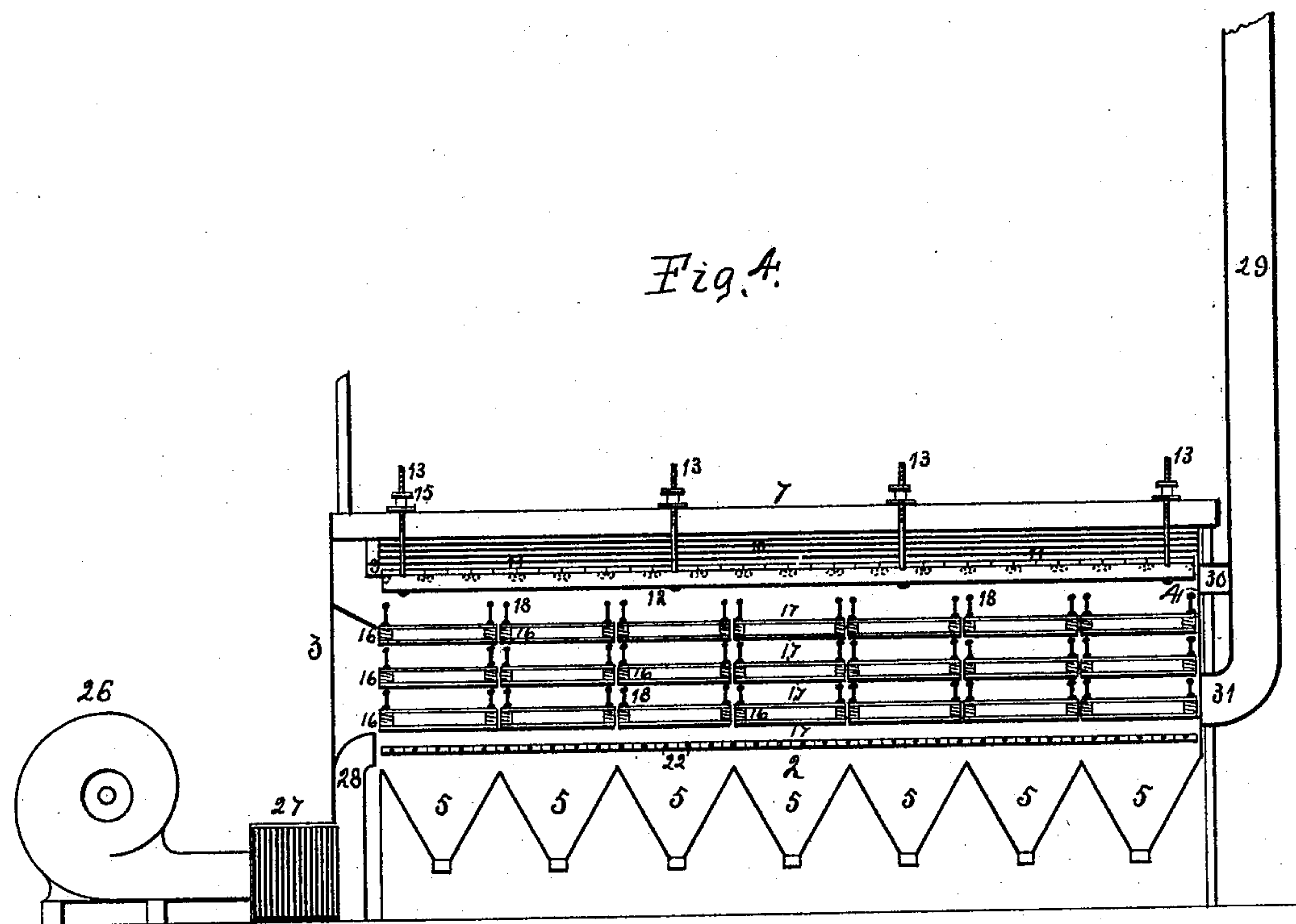
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UNITED STATES PATENT OFFICE.

LOUIS P. BAUER, OF ROCKFORD, ILLINOIS, ASSIGNOR TO THE ROCKFORD SUGAR REFINING COMPANY, LIMITED, OF SAME PLACE.

STARCH-DRIER.

SPECIFICATION forming part of Letters Patent No. 583,783, dated June 1, 1897.

Application filed July 15, 1896. Serial No. 599,332. (No model.)

To all whom it may concern:

Be it known that I, LOUIS P. BAUER, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Processes of and Apparatus for Drying Starch, of which the following is a specification.

The object of this invention is to construct a kiln for drying starch in which the starch is subjected to a gradually-increasing temperature as the drying process continues.

In the accompanying drawings, Figure 1 is an elevation of a portion of a kiln. Fig. 2 is a vertical lengthwise central section. Fig. 3 is a vertical transverse section. Fig. 4 is a vertical lengthwise section of a complete kiln.

The casing of the kiln consists of the sides 1 and 2 and ends 3 and 4. The bottom is formed of hoppers 5, having slides 6 at their lower ends.

The top of the kiln is formed into starch-tables 7, in this instance four in number, and extending in the lengthwise direction of the kiln an opening 8 is formed between the two sets of tables, which communicates with the interior of the kiln.

To the under face of the starch-tables and located within the kiln are suspended two beams 9, extending in the lengthwise direction of the kiln, having the space between their upper face and under face of the tables fitted in with slats 10, these beams 9 supporting a dumping-grate composed of boards 11, having a pivotal connection therewith along the under edge and extending transversely of the kiln. A beam 12 extends in the lengthwise direction of the kiln and is located beneath the dumping-grate. Rods 13 hold this beam suspended and extend upward between the two sets of starch-tables through supports 14, receiving hand-wheels 15 upon their ends. Beneath this dumping-grate are located three shaking-grates, one above the other, and each grate composed of a series of sections, each section composed of transverse bars 16, to the upper and lower face of which are secured slats 17, the spaces between the upper slats being located over the lower slats. These sections are supported in a manner to swing by links 18, connected

to the bars 16, and suspended from the inner face of the side 2 one end of each of the transverse bars 16 extends through the side 1 of the casing, and the bars of each section are connected together by a cross-bar 19, forming a handle. Links 20 are connected to the projecting ends of the transverse bars and also to the outer face of the side 1 of the casing by being suspended from the supports 21.

Beneath the shaking-grates are located dumping-boards 22, which have a pivotal connection with the sides of the casing, the trunnions from one end extending through the casing having arms 23 connected thereto. A series of these arms are connected by a bar 24, which is operated by a hand-lever 25.

A blow-fan 26 is located near the bottom of the kiln, forcing air over a heater 27 into the kiln through a conductor 28, located opposite one end of the dumping-boards.

A vapor-flue 29 is located at the opposite end of the kiln and connects with the kiln through the pipes 30 and 31.

The starch, after settling upon the tables, is shoveled through the opening between the two sets of tables onto the dumping-grates, which are held closed by the beam 12 being raised. The heated air forced into the kiln is caused to circulate upward through the starch and after becoming saturated with moisture will escape to the vapor-flue. By means of the hand-wheels 15 the beam 12 is lowered, which will allow the boards composing the dumping-grate to move upon their pivotal connection, thereby lowering their free ends, which will allow the starch to drop upon the first shaking-grates, after which it is spread over the grate and the dumping-grate raised, receiving a new load of wet starch. As the starch upon the top shaking-grate becomes drier the sections of the grate are swung upon their link connection, thereby sifting some of the starch through onto the second shaking-grate, which in turn are swung, sifting the starch onto the bottom shaking-grate, and finally shaking the sections of this grate will deposit the starch upon the dump-boards, where it remains until properly dried, when the boards are turned upon their pivotal connection with the casing of the kiln, thereby depositing the starch into

the hoppers, where it will cool. This is a continuous process, and as the heat is greatest at the point it enters the kiln it will gradually cool as it ascends, coming in contact with the wet starch, and pass off through the vapor-flue. By allowing the greatest heat to come in contact with the dry starch and gradually cooling as it ascends the new or wet starch is prevented from turning yellow, which would be the case if subjected to a great heat at first.

I claim as my invention—

1. In a starch-kiln, the combination with a suitable casing, of a wet-starch receiver arranged within the upper part of said casing and having open communication with the top thereof, a dumping-grate arranged within said starch-receiver, a series of shaking-grates located within the casing beneath the dumping-grate, and dumping-boards located beneath the shaking-grates.

2. In a starch-kiln, the combination with a suitable casing, of a wet-starch trough or receiver arranged within the upper part of said casing and having open communication with the top thereof, a dumping-grate arranged within said starch-receiver, a vertically-moving beam arranged to support the bars of the dumping-grate and hold them in a horizontal position, a series of shaking-grates located beneath the said dumping-grate, and dumping-boards located beneath the shaking-grates.

3. In a starch-kiln, the combination with a suitable casing having starch-tables arranged upon the top thereof, of a starch-receiver arranged within the upper part of the casing and having open communication through the top thereof, said opening being arranged between the said starch-tables, a dumping-grate arranged within said starch-receiver, a series of shaking-grates located beneath the dumping-grate, and dumping-boards located beneath the shaking-grates.

4. In a starch-kiln, the combination with a suitable casing having starch-tables arranged upon its top, of a wet-starch receiver arranged within the upper part of the casing and pro-

vided with openings in the side walls thereof, of a dumping-grate forming a bottom for said receiver, a vertically-movable beam suspended by rods from the starch-tables, and acting as a support for said dumping-grate, a series of shaking-grates located beneath the wet-starch receiver, and dumping-boards located beneath the shaking-grates.

5. In a starch-kiln, the combination with a suitable casing, of a wet-starch receiver arranged in the upper part of said casing and provided with a dumping floor or bottom, a plurality of independently-movable grate-sections arranged in tiers within the casing below the starch-receiver, and each section being capable of having a movement independent of the others, and dumping-boards below the grate-sections.

6. In a starch-kiln, the combination with a suitable casing, of a wet-starch receiver arranged within the upper part of the said casing and provided with a dumping-floor, a series of independent, shaking-grate sections arranged in tiers and suspended by links within the casing, and each section capable of moving independent of the others, a handle secured to each section and projecting outside the casing, and dumping-boards located below the grate-sections, substantially as described.

7. In a starch-kiln, the combination with a suitable casing having starch-tables located upon the top thereof, of a starch-receiver secured to the top of the casing and having open communication therethrough between the starch-tables, a dumping-floor arranged within the starch-receiver, a series of shaking-grates suspended within the casing, dumping-boards arranged below the said shaking-grates, a hot-air flue opening into the lower part of the casing near one end, and an air-outlet located at the opposite end, substantially as described.

LOUIS P. BAUER.

Witnesses:

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