

S. L. SNYDER & S. JACKLIN.

FLOUR MACHINE.

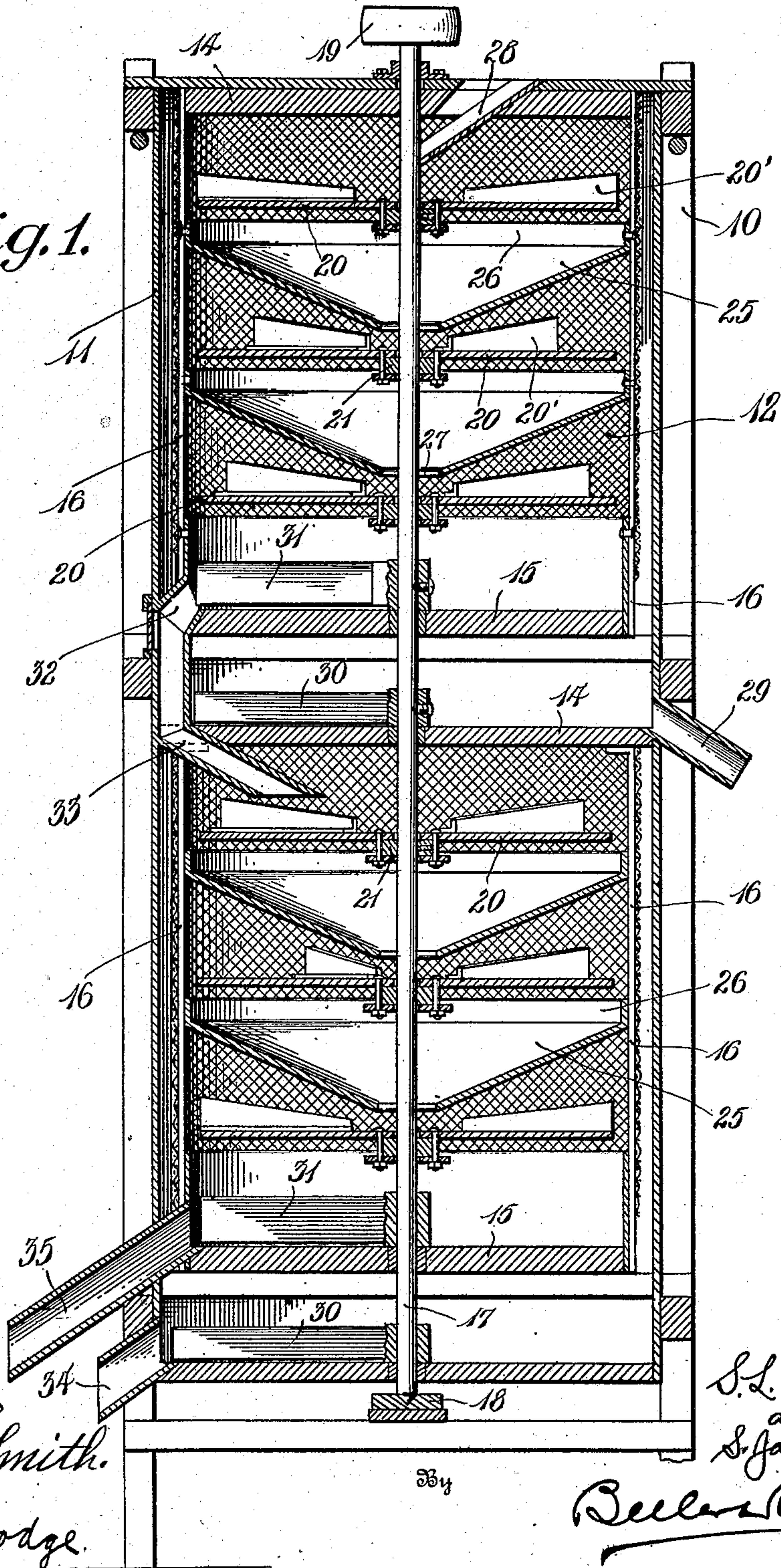
APPLICATION FILED JULY 31, 1908.

911,913.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

C. C. Smith.

S. E. Dodge.

Inventors
S. L. Snyder
and
S. Jacklin.

Beeler Cobb
Attorneys

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2 SHEETS—SHEET 2.

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Fig. 2.

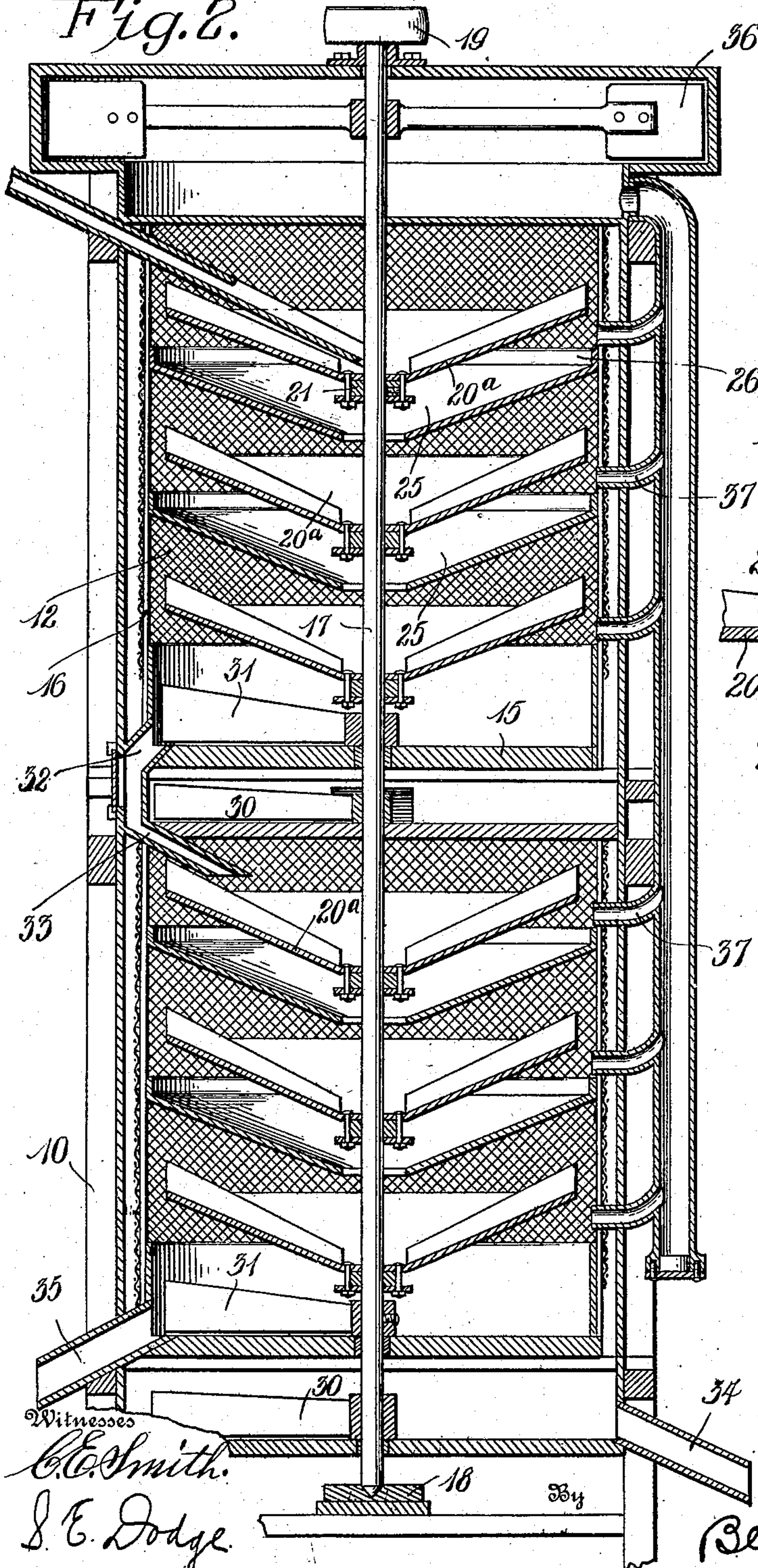


Fig. 3.

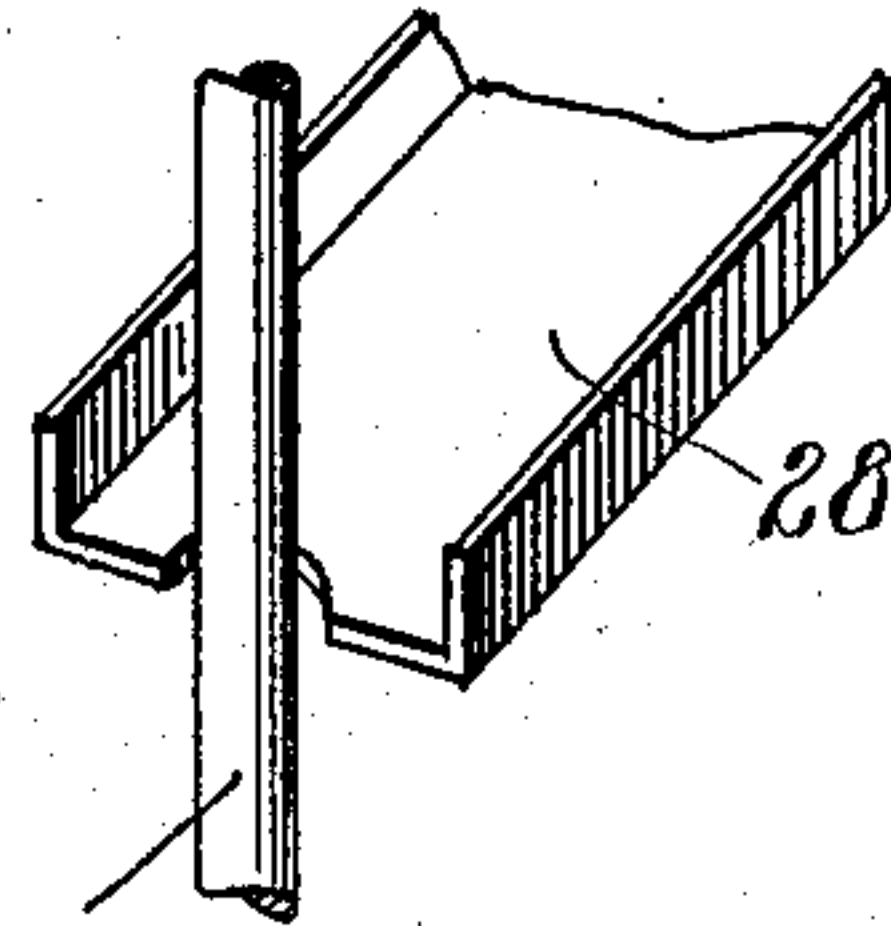


Fig. 4.

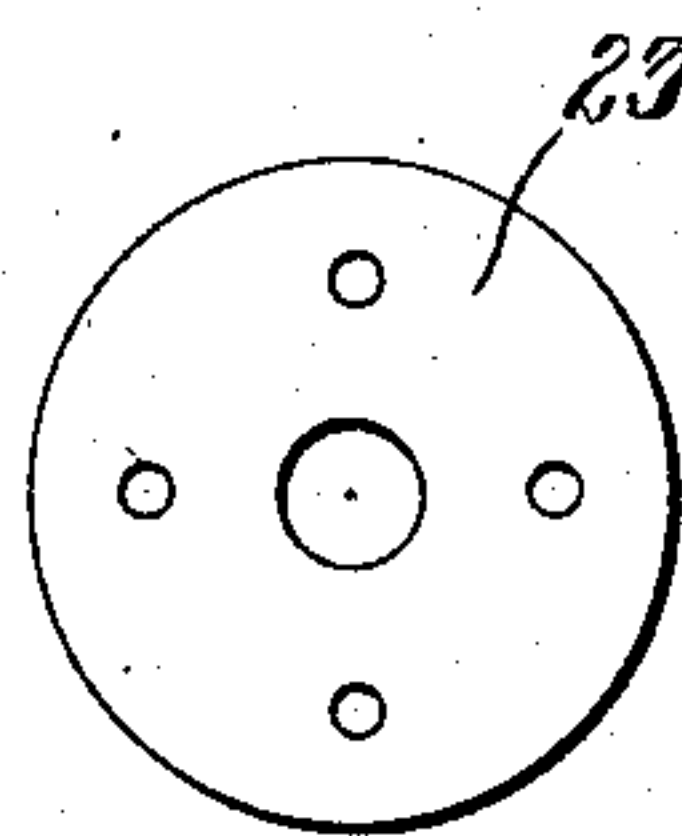
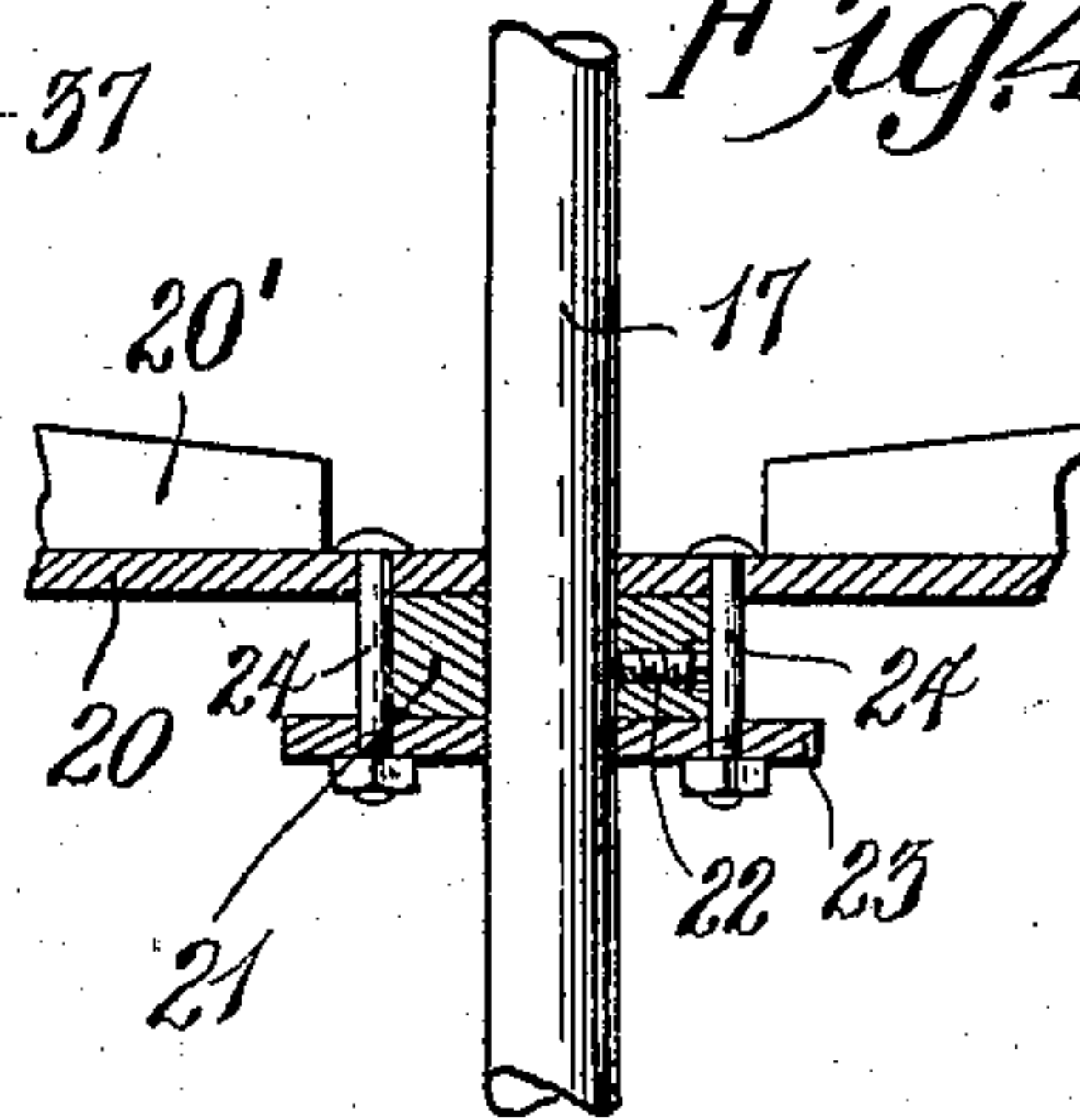


Fig. 5.

Witnesses
C. E. Smith.
S. E. Dodge.

Inventors
S. L. Snyder
and
S. Jacklin,
Beiler & Cobb
Attorneys

UNITED STATES PATENT OFFICE.

SAMUEL L. SNYDER AND SYLVESTER JACKLIN, OF HOLGATE, OHIO.

FLOUR-MACHINE.

No. 911,913.

Specification of Letters Patent.

Patented Feb. 9, 1909.

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To all whom it may concern:

Be it known that we, SAMUEL L. SNYDER and SYLVESTER JACKLIN, citizens of the United States, residing at Holgate, in the county of Henry and State of Ohio, have invented certain new and useful Improvements in Flour-Machines, of which the following is a specification.

This invention relates to flour milling machinery, and has particular reference to machines designed for the purposes of bolting, sifting, scouring, cleaning, scalping, and the like, in flour mills, and may be utilized in other connections such as in separation generally.

For a full understanding of the invention, reference is to be had to the following detail description and to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of the invention as used as a bolting machine; Fig. 2 is a similar view showing the invention applied as a scourer, and including a slightly modified form of operating disk; Fig. 3 is a detail illustrating the relative positions of the inlet spout and vertical drive shaft; Fig. 4 is an enlarged detail of one of the disks showing one of the ways in which the same may be attached to the drive shaft, and Fig. 5 is a plan view of one of the parts shown in Fig. 4.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

The machine constituting the subject of this invention comprises any suitable form of substantial frame 10 which may be portable or stationary, as may be desired in any particular case. Secured in any suitable manner within said frame is a casing 11 which may be of any suitable form in cross section, either polygonal or circular. Within the casing 11 is a separating screen 12, preferably cylindrical in form. The casing 11 it will be understood is stationary with respect to the frame 10 which supports it. Likewise, the separating screen 12 is mounted in a stationary relation to the outer casing 11. To this end the screen may be mounted upon a skeleton frame comprising upper and lower disks 14 and 15 and connecting ribs 16.

A power shaft 17 extends vertically and

centrally through the aforesaid frame and casing and is mounted at its lower end in any suitable form of step bearing 18, mounted preferably upon the lower portion of the frame 10 of the machine. Said shaft 17 will have bearings in the aforesaid disks 14 and 15, as well as in a bearing at the top of the frame 10. This shaft will be driven in any suitable manner by a power pulley 19 located at any convenient point in the shaft.

Mounted upon the shaft within the casing 12 are a plurality of disks 20, shown in Fig. 1 as being flat and circular. These disks may be secured to the shaft in any suitable or convenient manner. As an illustration of such means there are shown the following devices: A collar 21 is secured rigidly as by a set screw 22 to the shaft so as to determine the elevation of the disk. The disk surrounds the shaft in proximity to the upper surface of the collar, and the circular plate 23 surrounds the shaft immediately below the collar. The disk and plate 23 may be connected by means of adjustable fastenings 24 in such a manner as to make a frictional connection between the disk and the collar. In some instances it may be highly desirable to provide such connection for the disks as to permit relative movement between the disk and the shaft, as for instance when an obstacle such as a stone is fed into the machine. With a connection such as indicated an obstacle might cause the disk to remain stationary while the shaft continues to rotate without doing any serious damage to the machine. It will be understood, however, that the friction between the disk and the collar will be sufficient to operate the disk from the shaft under ordinary conditions of service. Each disk and its plate 23 being clamped to the collar in accordance with the desired frictional tension, in order to vary the adjustment of the disk on the shaft 17 it is only necessary to loosen the set screw 22. The said screw is freely accessible from the space between the disk and plate, and the manipulation thereof to raise or lower the disk, as is desirable in machines of this character, may be effected without altering the said connection with the collar.

Located beneath the uppermost disk and secured preferably to the uprights or

ribs 16 is a funnel or hopper 25, which may be provided with a vertical flange 26 if desired. As indicated in the drawings one of the hoppers or funnels 25 will be located
 5 directly beneath each of the disks 20. In other words, the disks and hoppers will alternate throughout the extent of the machine. The diameter of the disk 20 is less than the internal diameter of the screen 12,
 10 while that of the funnels 25 is substantially equal thereto. The funnels 25 being connected to the rigid members of the casing are stationary, and are provided at their lower ends or apexes each with an opening
 15 27, directly above the center of the disk next below. The material to be operated upon may be fed into the top of the machine in any convenient manner, but preferably by a
 20 spout 28 which as indicated directs the material upon opposite sides of the shaft 17, whereby the material is separated so as to cause different portions thereof to be acted upon by different portions of the disk at the same time. By this means the output of the
 25 machine may be materially greater than if the spout directed the material all to one spot. The disks are provided with propelling blades 20' on their upper surfaces, which acting upon the material will throw the
 30 same due to the rotary movement of the disks against the screen 12. A portion of the material will pass through the screen and another portion thereof will drop into the funnel 25 immediately below the first
 35 disk. From this funnel material will be directed upon the second disk, which will act upon it in a manner similar to that first described, a portion again of the material passing through the screen and the coarser
 40 portions rolling down upon and through the second funnel, and so on throughout the whole machine. The first grade material, that which passes directly through the
 45 screen 12 will be received at the bottom of the casing between the screen and the casing 11, and will be delivered therefrom through a spout 29 through the operation of a scraper
 30 secured to the shaft 17 and rotating therewith. The second grade material, that portion which does not pass through the screen
 50 directly may be directed from the top of the lower disk 15, by operation of a scraper 31, and thence directed downwardly through a spout 32 to any convenient point. As
 55 illustrated in Fig. 1 said spout 32 leads to another spout 33 into the top of a second screen section, the screen of which may be of a different mesh if desired from that of the first, and in which the material will be
 60 again acted upon as before, that portion of the material which passes through the screen being in all cases of a finer grade than that which does not so pass through. In this form of machine the second grade material
 65 is drawn therefrom at the bottom through a

spout 34, and the coarsest grade will be received through a spout 35 from the interior of the screen at the lower end.

In the form of the machine, used as a scourer or cleaner, illustrated in Fig. 2, it
 70 may be desirable to employ a suction fan 36 located at any convenient point, as at the top of the machine. As in the former modification the separating screen is stationary
 75 within the stationary frame. A similar form of funnels is employed, and as before a plurality of disks are secured upon the vertical central shaft for rotation between
 80 the funnels. In this figure a slightly modified form of disks is illustrated, although it will be understood that the form of the disks is not dependent upon any particular
 type of machine or operation to be carried thereby. As shown herein the disks 20^a are
 85 funnel-shaped, or conical, and it will be understood that the centrifugal force given to the machine through the shaft will be sufficient in all forms of the invention to propel material outwardly against the
 90 screen 12.

In the operation of scouring or cleaning it is desirable to connect the fan chamber by means of conduits 37 with each of the
 95 several chambers between the stationary funnels, whereby dust or light particles of material may be withdrawn therefrom and blown away to any convenient place by operation of the fan 26. The principle of the separation is the same in both forms of the invention
 100 illustrated. It will be understood that the apparatus may be constructed of any suitable materials or proportionate parts and that slight modifications may be resorted to within the spirit of the invention
 105 hereinafter claimed.

Having thus described the invention, what is claimed as new, is:

1. In a machine of the character set forth, the combination of an outer casing, an inner casing providing a stationary screen, a cen-
 110 tral rotary power shaft within said screen, a series of funnels fixed upon the inner wall of said screen, a series of disks, one disk above each funnel, and means to adjustably
 115 secure each disk to the power shaft, such securing means comprising a collar, means to frictionally secure the disk to the collar, and means operable independently of said
 frictional securing means to fix the collar
 120 at the desired distance from the adjacent funnel.

2. In a machine of the character set forth, the combination of an outer casing, an inner casing providing a stationary screen, a cen-
 125 tral rotary power shaft within said screen, a series of funnels fixed upon the inner wall of said screen, a series of disks, one disk above each funnel, and means to adjustably
 secure each disk to the power shaft, such se-
 130 curing means comprising a collar on which

the disk is supported, a plate below the collar, a set of clamping bolts extending between the disk and plate outside of the collar to secure the disk frictionally to the collar, and a set screw operable independently of said friction means to determine the adjustment of the collar and disk on the shaft.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL L. SNYDER.

SYLVESTER JACKLIN.

Witnesses:

HALLIE LAMPMAN,

G. H. LAMPMAN.