F. B. WILLIAMS AND B. F. ADAMS.

COTTON CLEANING APPARATUS.

APPLICATION FILED NOV. 13, 1920.

1,407,504.

Patented Feb. 21, 1922.

2 SHEETS—SHEET 1.

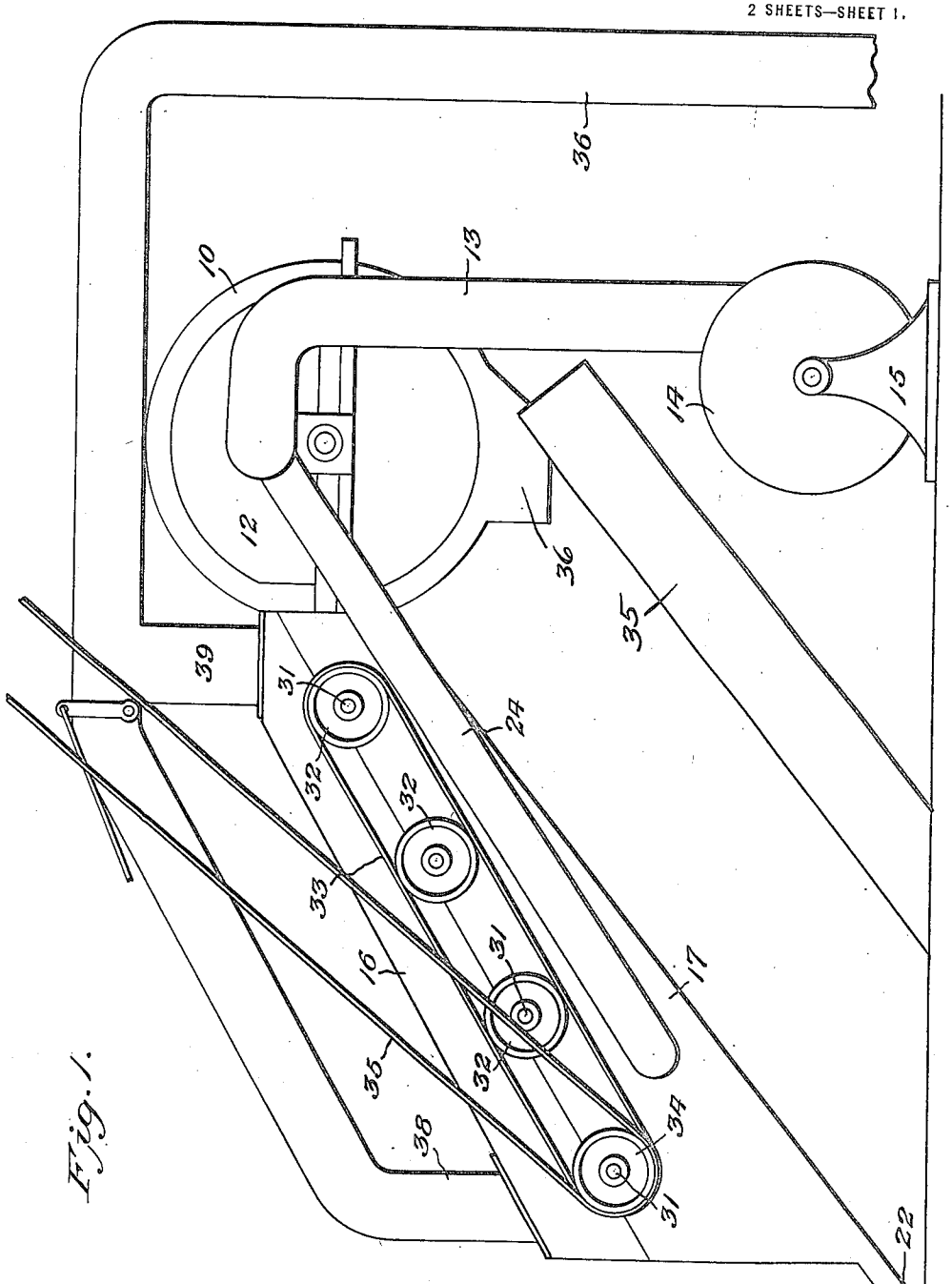


Fig. 1.

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B. F. Adams
INVENTORS

Edwin L. McKee.

WITNESS:

BY Victor J. Evans

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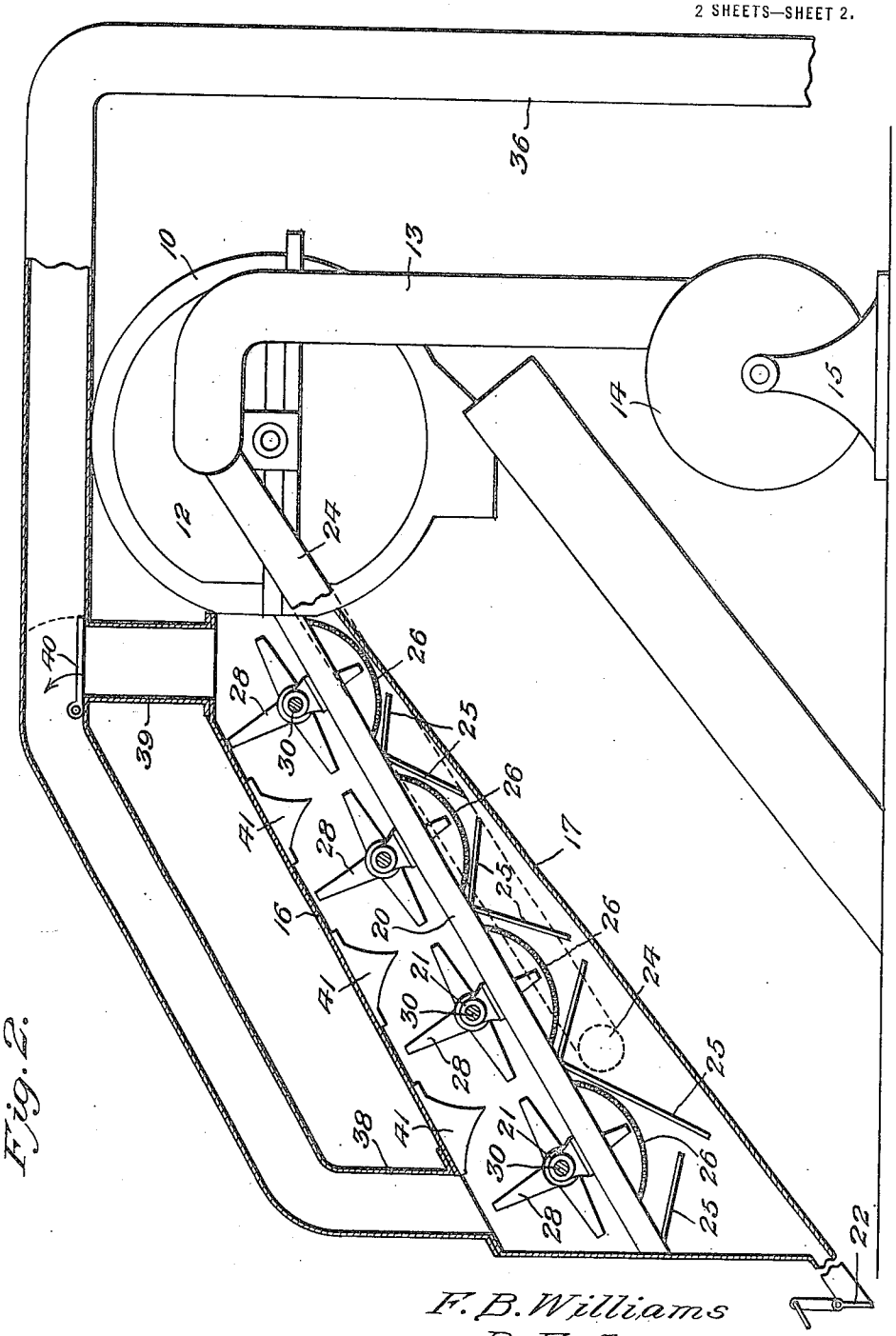


Fig. 2.

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WITNESS:

UNITED STATES PATENT OFFICE.

FRENCH B. WILLIAMS AND BENJAMIN F. ADAMS, OF DALLAS, TEXAS.

COTTON-CLEANING APPARATUS.

1,407,504. Specification of Letters Patent. Patented Feb. 21, 1922.

Application filed November 13, 1920. Serial No. 423,926.

To all whom it may concern:

Be it known that we, FRENCH B. WILLIAMS and BENJAMIN F. ADAMS, citizens of the United States, both residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Cotton-Cleaning Apparatus, of which the following is a specification.

This invention relates to a cotton cleaning apparatus, and the object is to provide a certain novel mechanism for connection in the suction line of an unloading device, for cleaning the cotton prior to the passage thereof to the drum separator.

A further object is to provide a cleaning apparatus which shall include series of rotary devices acting on the cotton bolls, and to provide in connection with the rotary elements, means for forming air pockets beneath a series of curved perforated elements constituting cleaning screens.

A still further object is to provide a valve in the suction line, which will permit the cotton to pass directly to the separator, when the condition of the cotton is such that it is not necessary for it to pass through the cleaning apparatus.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of elements hereinafter described and claimed.

In the drawings, Figure 1 is a view of the apparatus in side elevation, and Figure 2 is a view in vertical longitudinal section, with parts in elevation.

A drum separator is shown more or less conventionally at 10, the housing 12 thereof being connected by an air duct 13 with the housing 14 of a suction fan 15.

Connected with the housing of the drum separator is a casing 16 in which the rotary cleaning devices are mounted. The lower portion of this casing comprises a sheet metal pan 17 including a bottom element, and side elements which enclose air pockets referred to below, rendering the casing, with the upper structure thereof, airtight.

Timbers 20 serve to mount the bearings 21 of the rotary cleaning devices, these timbers with the casing being inclined at an angle of about 45 degrees, permitting the sand and waste material to pass downwardly through valve 22 to a point of discharge. Air is withdrawn from the lower portion of this casing through duct 24 having communication with the duct 13, so that the gritty material which may remain in the air ducts will pass directly through to the suction line and will not damage the blades of the fan.

A series of air pockets is formed in the lower portion of the casing 16, the inclined strips 25 being mounted as shown and projecting between each two sections 26 of perforated metal. Adjacent inclined strips are spaced apart at the bottom, as shown and serve to discharge the waste material into the pan from which it is discharged by gravity. The perforated metallic plates are curved as shown, and serve an important purpose in the cleaning operation, in connection with the rotary cleaning devices designated 28, and each including a series of spiders spaced apart on the shaft 30, in the manner shown. These spiders are shown in a conventional manner only, in the present case. The shafts 31 of the rotary cleaning devices each carry a pulley 32, the pulleys being in line and being driven by a belt 33. One of the shafts carries an additional pulley 34 driven by belt 35 receiving motion from any suitable source of power.

The cotton is taken from the wagon and is drawn into pipe 36 passing over the drum separator and cleaning apparatus and having connection with the latter at the upper portion of the casing 16, and at the point 38. A by-pass is shown at 39, and a valve 40 when closed permits the cotton to pass directly to the drum separator, instead of passing through the cleaning apparatus, this valve being employed when the cotton does not require cleaning. Air deflecting devices 41, termed draught breakers are mounted in the upper portion of the casing between the rotary elements. A discharge chute 35 extends to a point below discharge opening or portion 36 of housing 12 of separator 10.

It is obvious that changes, alterations or additions may be made within the scope of the appended claims.

What is claimed is:—

1. In a device of the class described, a series of perforated elements spaced apart, a rotary cleaning device mounted above each perforated element, and deflecting plate members arranged in pairs, with the upper edges of members of corresponding pairs converging between the perforated elements, and the lower edges of the members of adjacent pairs converging below the respective perforated elements.

2. In a device of the class described, a se-

ries of rotary cleaning devices, curved perforated elements located beneath each of said rotary devices and having their edge portion spaced apart, elements forming air pockets between the perforated elements and below the latter, said elements last named being arranged in pairs, and the elements of each pair converging between the spaced portions of the perforated elements and being in intimate relation with the surfaces of the latter, the lower edges of members of adjacent pairs converging beneath the respective perforated elements, a bottom member inclined downwardly and spaced from the lower edges of the converging elements, permitting of the discharge of foreign material by gravity, and means for withdrawing air from below the converging elements.

3. In a device of the class described, a separator including a housing, a cleaning apparatus including a housing in connection with the housing first named, rotary cleaning devices within the second named housing, means for forming air pockets below the cleaning devices in the second named housing, means for withdrawing air from said pockets independent of an air connection with the separator, and means for producing suction longitudinally of the second named housing and through the housing of the separator, an inlet duct for admitting cotton to the second named housing at a point remote from the separator, a duct connected with the duct first named and with the second mentioned housing at a point adjacent to the separator, and a valve controlling said ducts, for diverting cotton into either end of the second named housing.

In testimony whereof we affix our signatures.

FRENCH B. WILLIAMS.
BENJAMIN F. ADAMS.