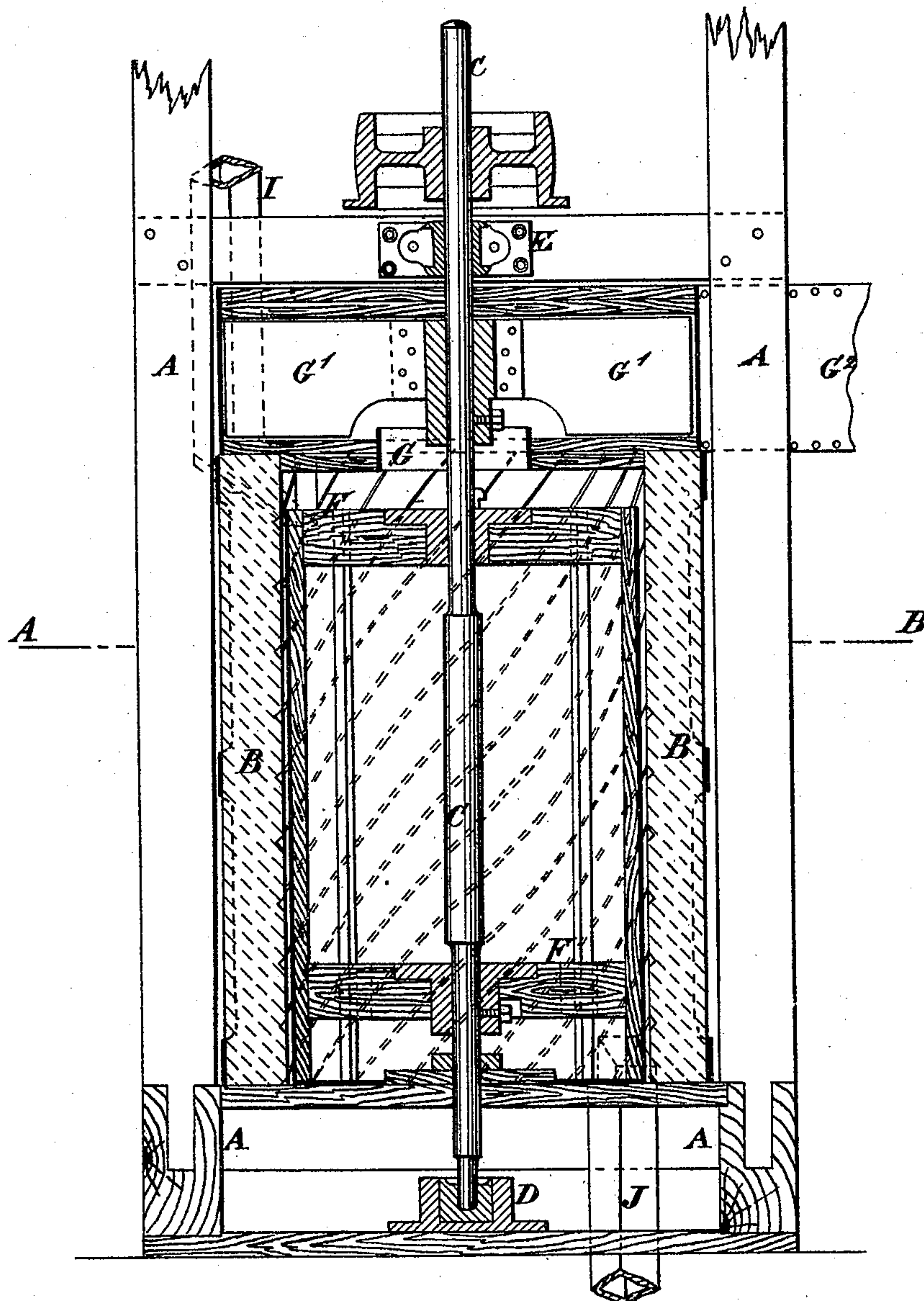


P. VAN GELDER.
SMUT-MILL.

No. 175,632.

Patented April 4, 1876.

FIG. 1.



WITNESSES;

Baltis & Long.
H. Lick

PIETER VAN GELDER, INVENTOR;

BY HIS ATTORNEY

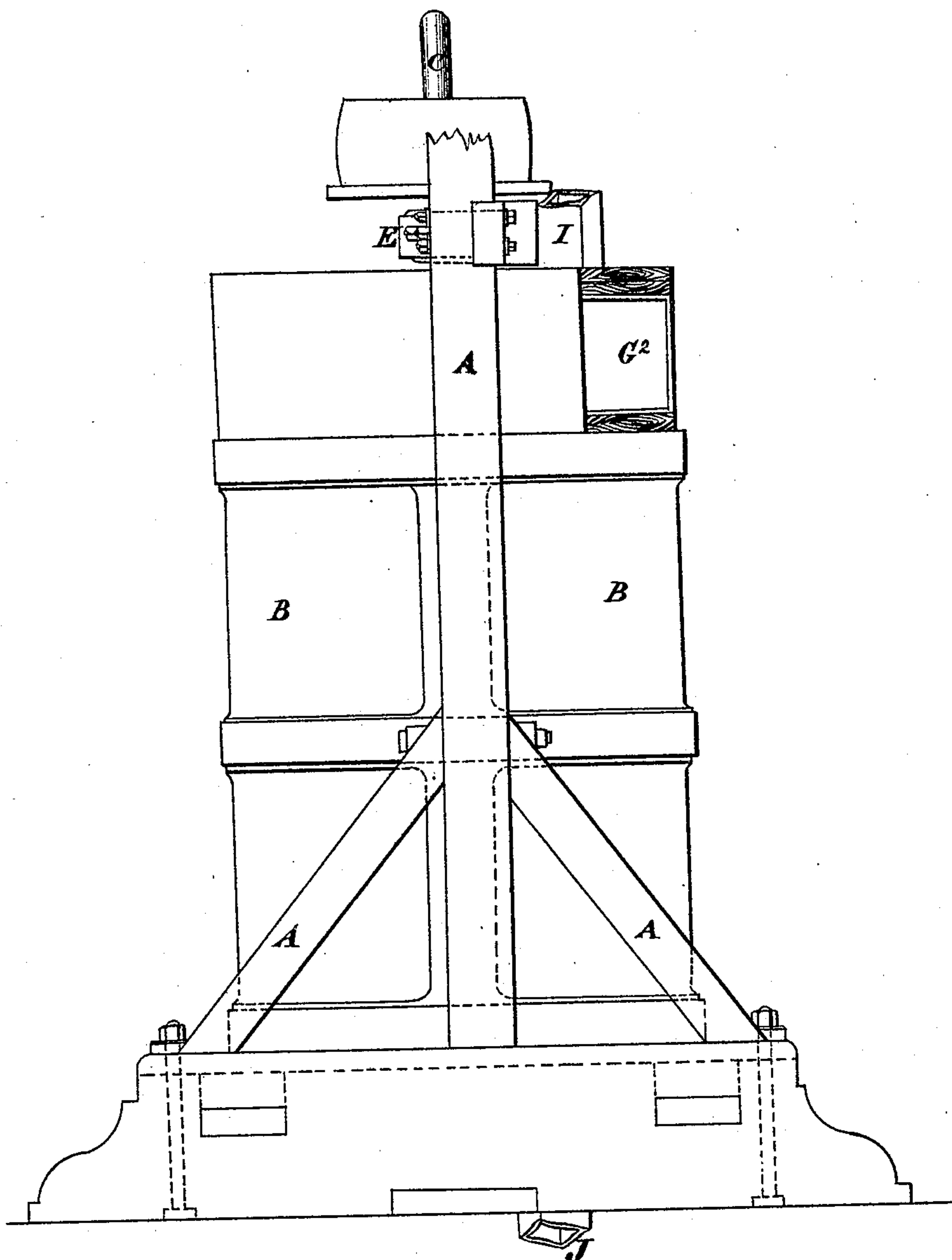
Wm. Baldwin

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No. 175,632.

Patented April 4, 1876.

FIG. 2.



WITNESSES;

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SMUT-MILL.

No. 175.632.

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FIG. 3.

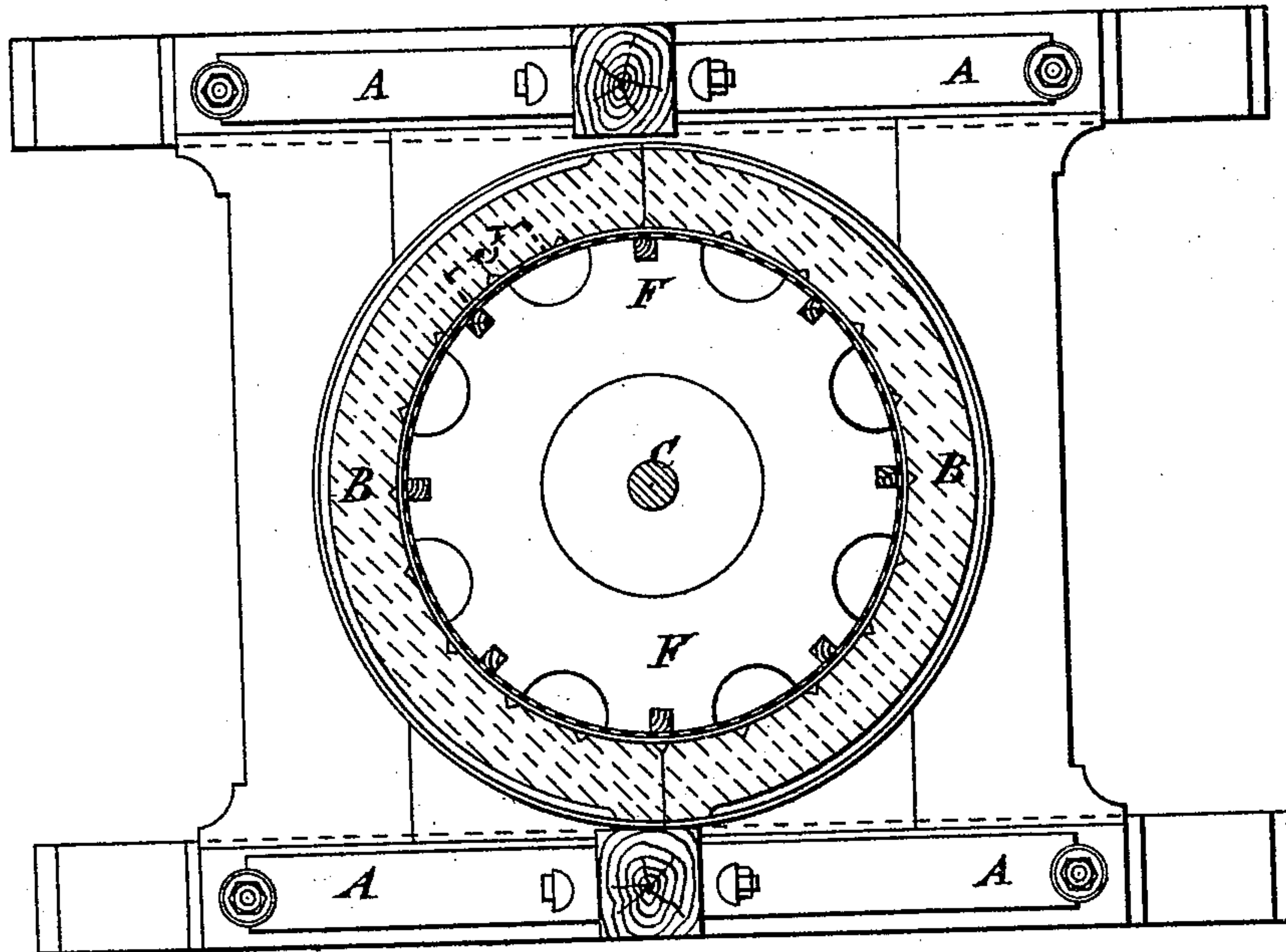
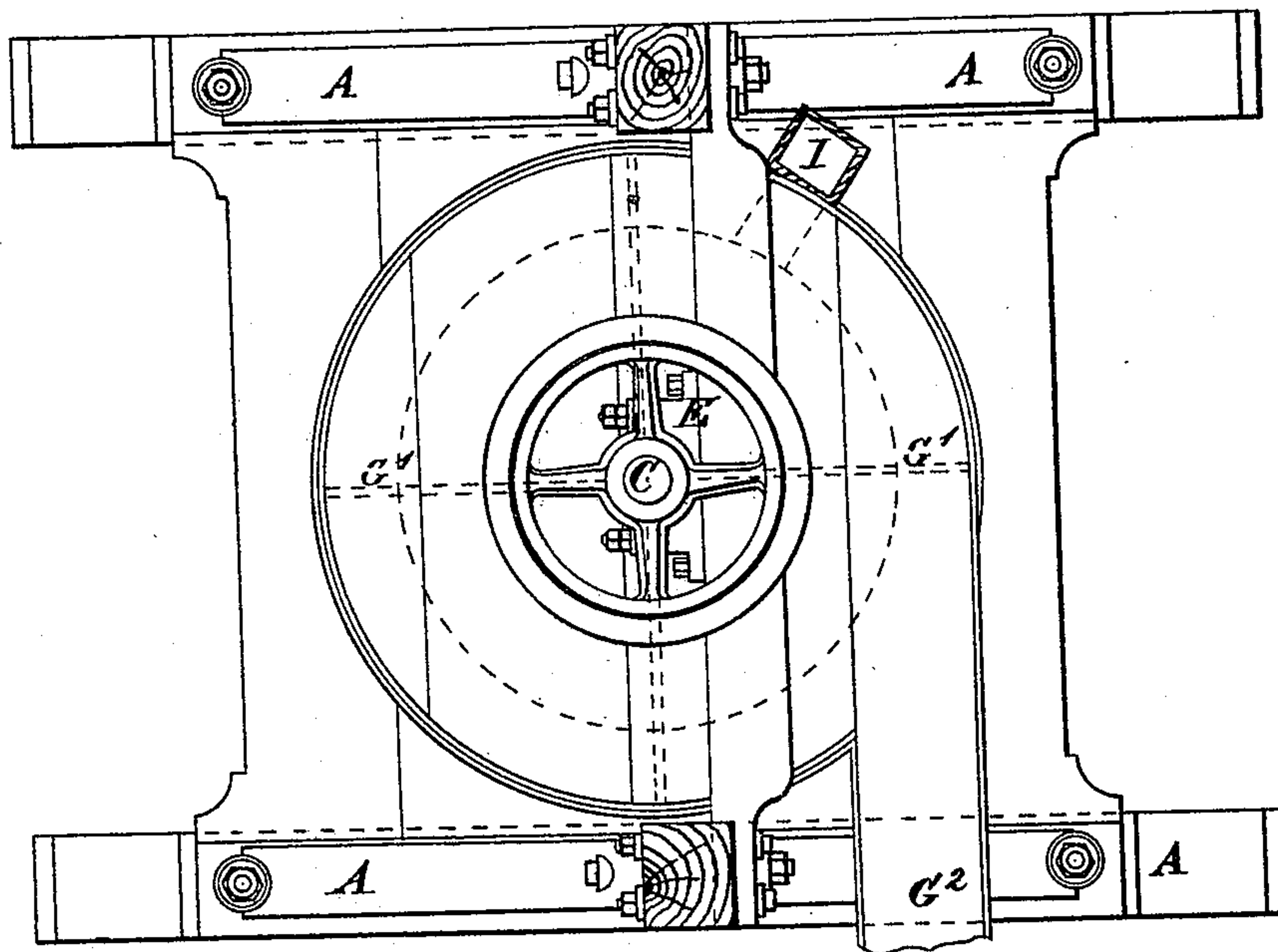


FIG. 4.



WITNESSES:

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Wm. Baldwin

UNITED STATES PATENT OFFICE.

PIETER VAN GELDER, OF VRYENBAN, NEAR DELFT, HOLLAND.

IMPROVEMENT IN SMUT-MILLS.

Specification forming part of Letters Patent No. **175,632**, dated April 4, 1876; application filed November 5, 1875.

To all whom it may concern :

Be it known that I, PIETER VAN GELDER, Vryenban, near Delft, in the Kingdom of Holland, at present residing at Sefton street, Litherland, in the county of Lancashire, England, a subject of Holland, have invented or discovered new and useful Improvements in Apparatus for Removing Smut from Wheat, and for the better cleaning of wheat and other grains; and I, the said PIETER VAN GELDER, do hereby declare the nature of the said invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof—that is to say:

This invention has for its object sundry improvements in apparatus for removing smut from wheat, and for the better cleaning of wheat and other grains.

For this purpose an apparatus is formed, consisting of a strong frame made of wood or iron, which supports a hollow cylinder made of natural or artificial stone. Within this cylinder revolves, on a vertical spindle, a hollow drum, made of iron or steel plate or wire. The grain is admitted in the space between the outside of the drum and the inside of the stone cylinder, and is introduced at the top of this space. A horizontal ventilator is fixed onto the vertical spindle, and supplies a strong up-air draft, which, forcing its way through the helicoidal grooves, carries before it all dust and impurities, which are discharged through an opening near the top of the drum, and which, at the same time, improves the condition of the grain. The inside of the cylinder is provided with helicoidal grooves, which have the twist in the same or in the contrary direction to that in which the drum revolves, according to circumstances. The outside of the drum is provided with a rough surface. At the bottom of the cylinder is an opening, by which the cleaned grain is extracted.

Figure 1 shows a vertical section; Fig. 2, a side elevation; Fig. 3, a horizontal section on the line A B, Fig. 1; and Fig. 4, a plan view of apparatus for cleaning grain, arranged in the manner above described.

A is the frame, to which is secured a vertical cylinder, B, of stone, by preference nat-

ural sandstone, or an artificial stone composed, say, of two parts sharp sand, and one part Portland cement, the composition depending on the kinds of grain to be cleaned. The stone cylinder is divided vertically into two parts, and is tied together with iron bands, as shown, and rests at its lower end on a horizontal floor, which forms part of the frame. C is a spindle passing down vertically through the center of the cylinder. At its lower end it rests in a step, D, and at its upper end it passes through a bearing, E, and carries a driving-pulley, by means of which it can be revolved. Upon this spindle is fixed a hollow drum, F, the periphery of which is formed of wire-gauze, or of perforated sheet metal, with the metal set outward around the perforations, so as to form numerous small projections standing out from the sides of the drum.

Above the top of the cylinder B is a fan-casing, communicating with the cylinder by a central opening, G, in the bottom of the casing, as shown. Upon the spindle are also fixed fan-blades G¹, by which air is drawn in from the top of the cylinder B and expelled through the outlet G². An upward current of air is thereby produced, both through the annular space between the drum F and fixed stone cylinder B, and also from the bottom of this space through the interior of the drum, a small portion of air being also drawn in through the inlet-pipe I.

The helicoidal grooves formed around the inner surface of the stone cylinder B are shown at Fig. 1. The grain to be cleaned is fed into the top of the space between the fixed cylinder and the drum through the pipe I, and as it descends it is carried round by the revolving of the drum, and finally falls away in a cleaned state from the bottom of the space through the outlet-channel J, the impurities which have been rubbed off from the grain being carried away by the current of air, which is drawn up by means of the fan through the outlet-channel J and expelled from the fan-outlet G².

Having thus described the nature of my invention, and the manner of performing the same, I would have it understood that I claim—

1. The combination of the hollow stationary

cylinder, provided on its inside with helicoidal grooves, the revolving drum, having a perforated or open-work periphery and rough outer surface, arranged inside the cylinder, so as to leave an annular space between the cylinder and drum into which to feed the grain, and a fan, these members being constructed and operating substantially as set forth, to produce a current of air through the annular space between the drum and cylinder, as well as through the drum.

2. The combination, substantially as hereinbefore set forth, of the hollow internally-grooved cylinder, the hollow drum therein,

having openings in its periphery, and a rough outer surface, between which and the cylinder the grain-space is formed, the spindle upon which the drum is secured, the suction-fan, the fan case, communicating with the cylinder at one end, and a single outlet for the escape of the grain and admission of air at the other end of the cylinder.

P. V. GELDER.

Witnesses:

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Notary Public, Liverpool.

JAS. PENDLETON,
Iron-Founder, Liverpool.