

(No Model.)

3 Sheets—Sheet 1.

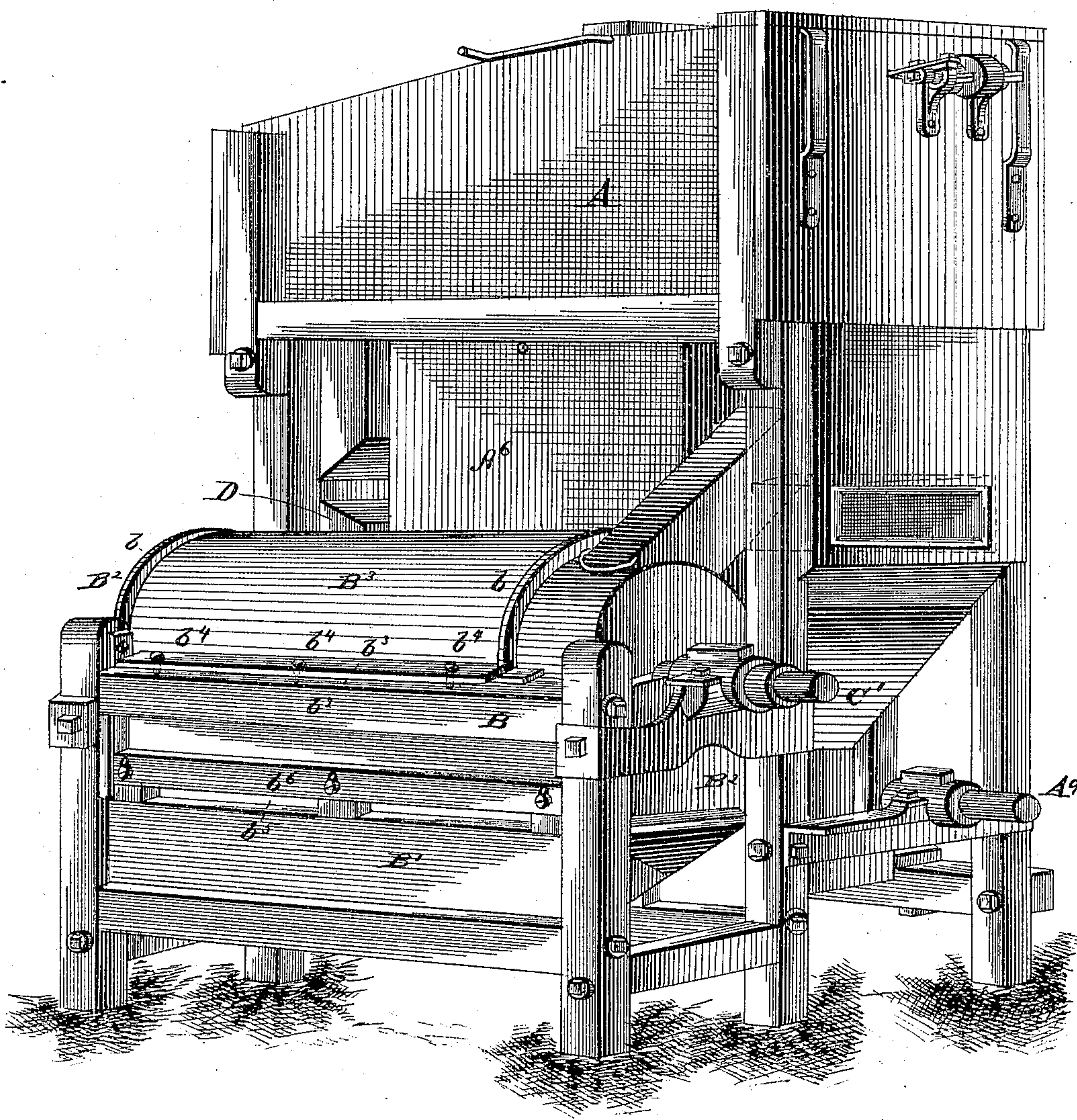
W. N. SHARPNACK & M. McMAHON.

SEPARATOR AND SMUTTER.

No. 301,073.

Patented June 24, 1884.

Fig. 1.



WITNESSES

Phil C. Dietrich.
A. C. Howell.

INVENTORS

INVENTORS
Wm N Sharpnack and
Michael McMahon
per Halleck & Halleck
Attorneys

(No Model.)

3 Sheets—Sheet 2.

W. N. SHARPNACK & M. McMAHON.

SEPARATOR AND SMUTTER.

No. 301,073.

Patented June 24, 1884.

Fig. 2.

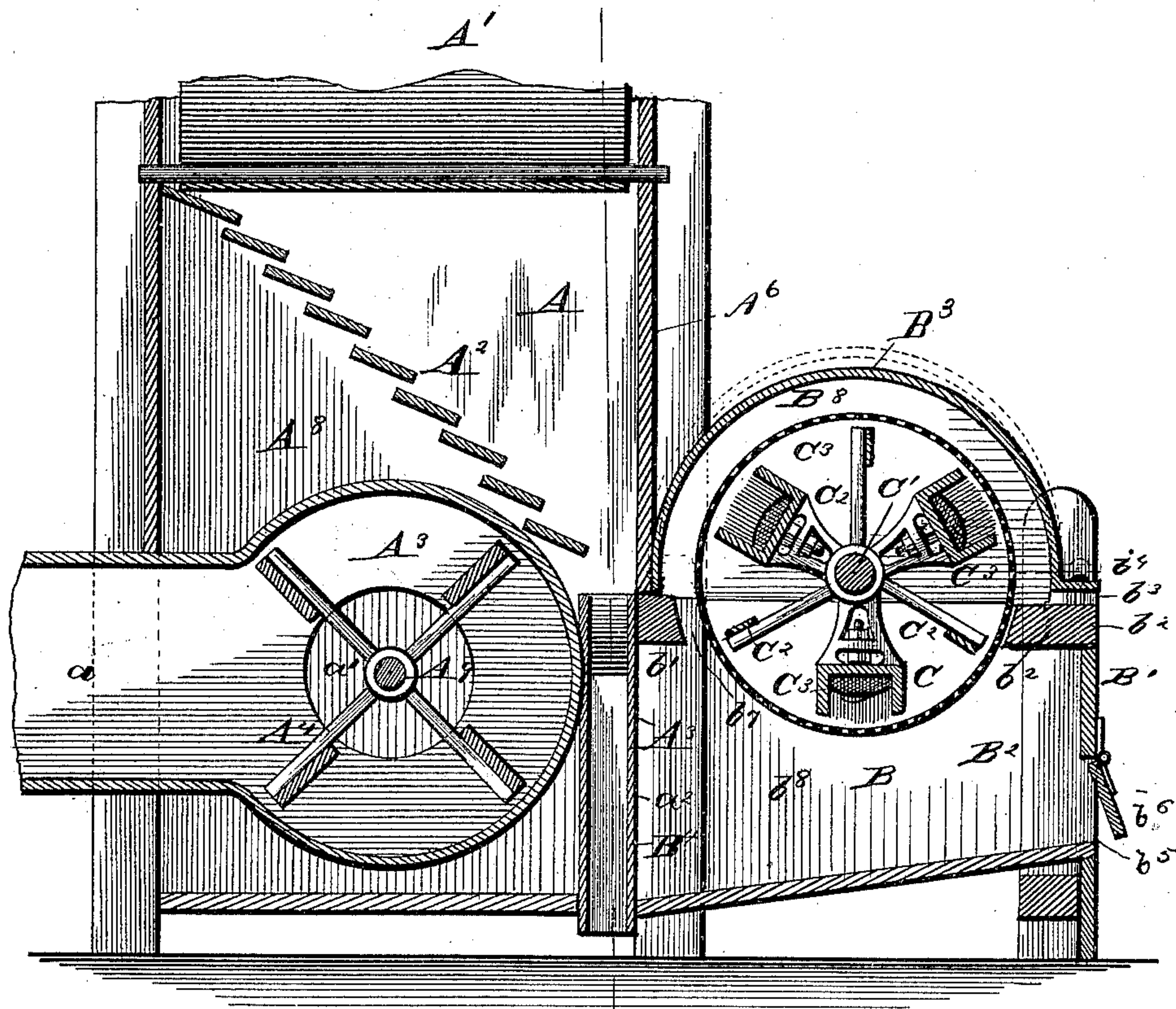
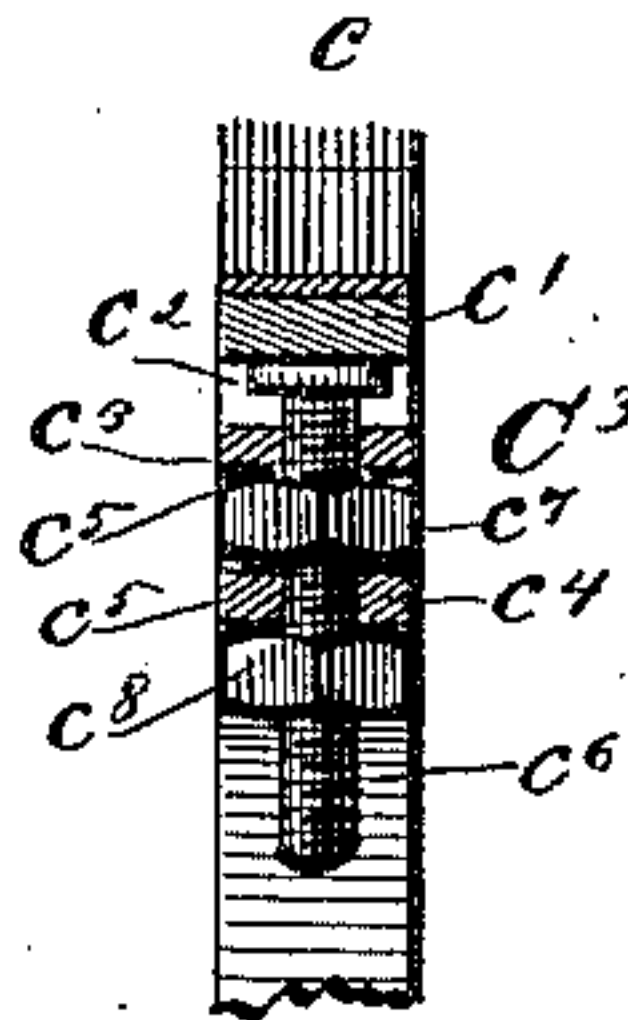
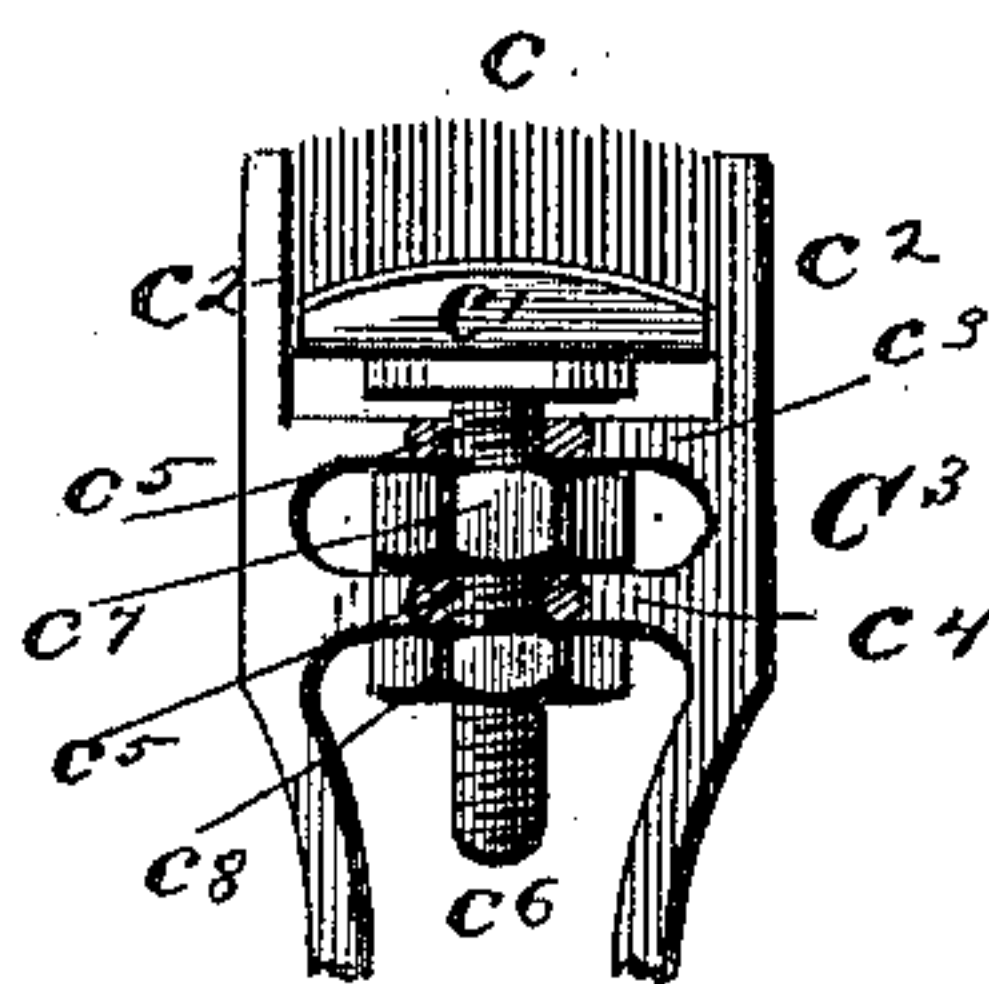


Fig. 4.

Fig. 5.



WITNESSES

Phil. Dietrich.
A. E. Dowell.

INVENTORS

Wm N Sharpnack and
Michael McMahon
per Hallenbach & Co.
Attorneys

(No Model.)

3 Sheets—Sheet 3.

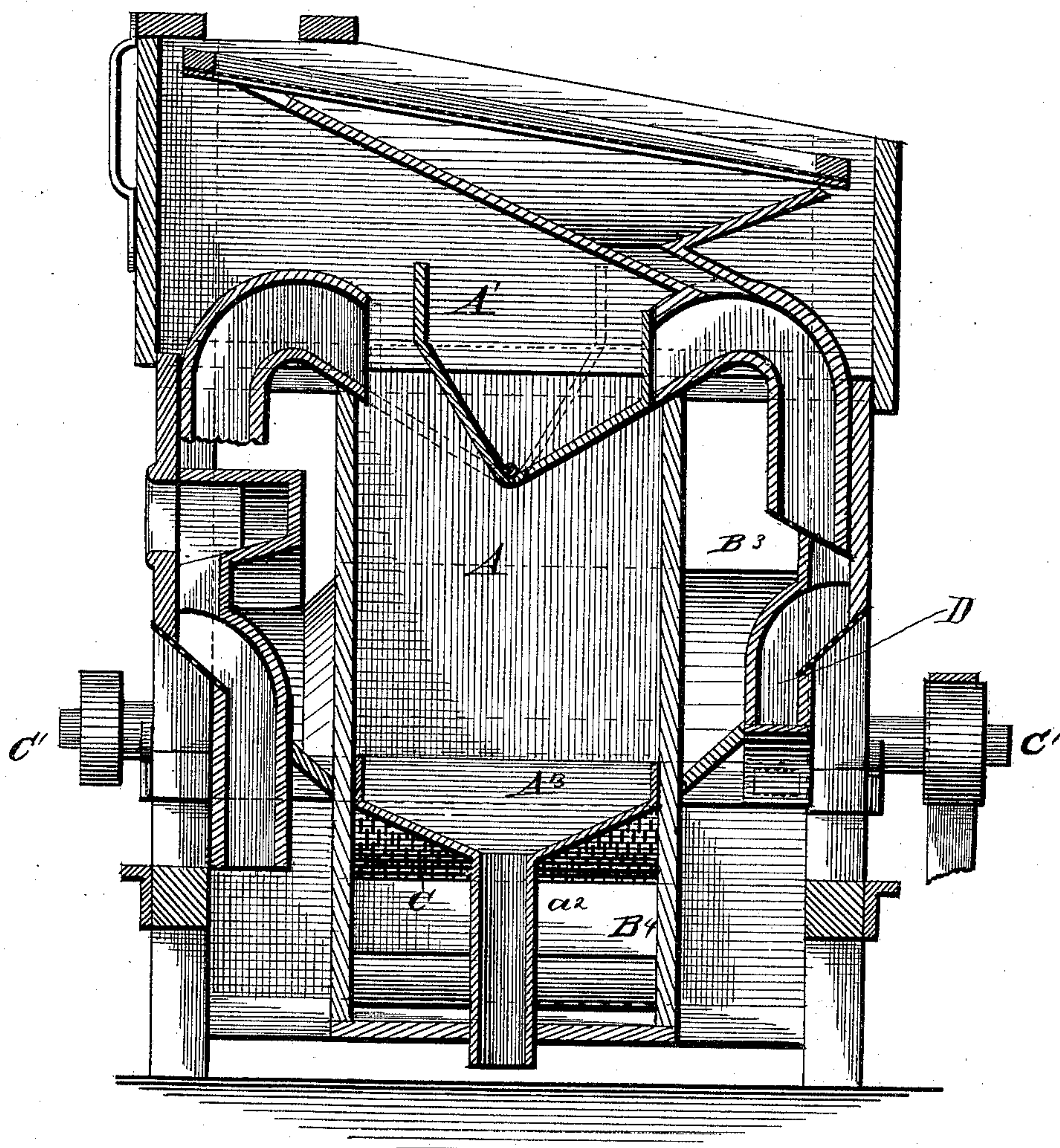
W. N. SHARPNACK & M. McMAHON.

SEPARATOR AND SMUTTER.

No. 301,073.

Patented June 24, 1884.

Fig. 3.



WITNESSES

Phil C. Listerich
A. E. Dowell

INVENTORS

Wm N Sharpnack
Michael McMahon
per Hallock & Hallock
Attorney S.

UNITED STATES PATENT OFFICE.

WILLIAM N. SHARPNACK AND MICHAEL McMAHON, OF BUCYRUS, OHIO,
ASSIGNORS OF ONE-HALF TO G. DONNENWIRTH, JR., AND J. C. TOBIAS,
BOTH OF SAME PLACE.

SEPARATOR AND SMUTTER.

SPECIFICATION forming part of Letters Patent No. 301,073, dated June 24, 1884.

Application filed February 27, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM N. SHARPNACK and MICHAEL McMAHON, citizens of the United States, residing at Bucyrus, in the county of Crawford and State of Ohio, have invented certain new and useful Improvements in Separators and Smutters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to machines for cleaning grain from smut and other refuse.

The principal object of our invention is to produce a better circulation of air around and through the smutter. Another object is to improve upon the means for scouring the grain.

Our invention therefore consists of constructions and combination, all as will hereinafter be described and claimed, whereby the desired results are accomplished, reference being had to the accompanying drawings, in which—

Figure 1 represents a perspective of our separator and smutter; Fig. 2, a longitudinal section through a separator and smutter, the upper part of the separator not being shown; Fig. 3, a transverse section through the separator-case; Fig. 4, a side elevation, and Fig. 5 a section, of the metallic brush.

A represents the separator-case, A' an equalizing-valve, A² shelves below the equalizing-valve, A³ a fan-case having outlet *a* and inlets *a'* *a'*, A⁴ a fan, and A⁵ a hopper having spout *a*², all of which are shown in an application, No. 108,042, filed by us on October 3, 1883. No claim is therefore made in this application to those parts.

B represents a secondary case or extension of case A, and consists of a front wall, B', side walls, B² B², and semi-cylindrical cover B³, and is connected with the interior of case A by an opening or passage, B⁴. Upon the ends of case B are semi-cylindrical flanges *b*, which close the ends of semi-cylindrical cover B³. This cover is made of metal or wood, preferably elastic, and is attached by its rear end to the cross-piece *b'* of case B, or the wall A⁶ of case A. The front end is attached to cross-

piece *b*² of case B in such a manner as to leave a space, *b*³, between said parts. The preferred mode is to attach it by means of set-screws *b*⁴, so that the space *b*³ may be increased or lessened in height at pleasure for the purpose of regulating the draft of air at this point. The front wall, B', is provided with an opening, *b*⁵, provided with a gate, door, or valve, *b*⁶, which can be opened or closed to any extent when it is desired to regulate the draft through opening *b*⁵.

The cylinder C is suspended in case B in any suitable manner, and fits closely to the cross-piece *b*², to prevent the air in the lower part of the case from passing in front of the cylinder. The cross-piece *b'* is separated from the cylinder by a space, *b*⁷, to connect the passage B⁸ with the chamber *b*⁸ below the cylinder. The passage B⁸ is formed by the cylinder C and the cover B³, and is used for the circulation of air around and through the upper part of the cylinder. The air admitted to this passage passes through opening or space *b*³. Through the cylinder extends a shaft, C', on which are the beaters C² and brushes C³, which will presently be described.

In all smutting devices that we are aware of the fan and fan-case are placed in such position in relation to the smutter that the draft or suction passes obliquely through the cylinder. In such cases part of the cylinder is not reached by the air. We propose to remedy this by placing the fan in such a position that the air will pass through every part of the cylinder, and it is accomplished by placing the fan immediately in the rear of the smutter, with the length of the fan-case parallel with the length of the smutting-cylinder. One means for accomplishing this is shown in the drawings, and consists of a fan-case, A³, located in a chamber, A⁸, and having its length parallel with the length of the cylinder, and inclosing the fan A⁴, mounted on a shaft, A⁹, which is parallel with the fan-case and cylinder. The air sucked through openings *b*³ and *b*⁵ passes around and through all parts of the cylinder, and is drawn into the fan-case and projected into the dust-room through exit *a*. By making the openings *a'* at the ends of the

fan-case the air is sucked through all the perforations of the cylinder, even to the very ends. By making the draft-opening into the fan-case parallel with its length the same result will be accomplished.

The brushes C^3 are formed with metallic bristles c , attached to bases c' in any suitable manner, and are attached to spiders radiating from the shaft C' . Each spider-arm is provided with projections or arms c^2 , which inclose part of the brush and prevent undue strain upon the base. Below the arms are bridges c^3 and c^4 , having openings c^5 , through which the screw-threaded stem c^6 , of brush C^3 projects. Between bridges c^3 and c^4 is an adjusting-nut, c^7 , and below bridge c^4 is a clamping-nut, c^8 . When the bristles c become worn, they can be projected nearer the inner circumference of the cylinder by revolving the clamping-nut c^8 a sufficient distance below the bridge c^4 and revolving the adjusting-nut c^7 until it raises the brushes to the proper point.

The operation of the device is as follows: The fan, beaters, and brushes being revolved in any suitable manner, the grain is passed from the separator to the smutter by means of passage D . The air is drawn by the fan through opening or space b^3 into passage B^8 , and part passes through the perforations on the front side and out through the perforations of the cylinder in the side nearest the fan. The rest of the air passes around the cylinder and through space or opening b^7 to chamber b^8 , from whence it is drawn into the fan. If desired, the amount of air drawn through opening or space b^3 may be regulated by adjusting the front end of cover B^3 . The bottom of the cylinder is deprived of its smut and dirt by a current of air drawn through opening b^5 , the size of which, as before stated, is regulated by

the door or valve. The dust and smut collected by the currents pass, with the latter, into the fan-case, from which they are projected through exit a into the dust-room.

What we claim is—

1. In a separator and smutter, the combination of a smutting-case having cross-piece b^2 , and openings above and below said cross-piece; a smutting-cylinder within said case, and forming with said case the passages B^8 b^8 and b^7 , and resting close to the cross-piece b^2 , and an exhaust-fan located behind the cylinder, substantially as described.

2. In a separator and smutter, the combination of a smutting-case having a cover provided with means for regulating the size of the opening between the top of the case and cover, a suction device, and a smutting device interposed between the suction device and front of the case, substantially as described.

3. In a separator and smutter, the combination of a smutting-case, a smutting-cylinder in said case, a cover over said case and cylinder, forming passage B^8 and opening b^3 , and provided with adjusting set-screws for regulating the height of opening b^3 , and a suction device, substantially as described.

4. In a smutter, the combination of a brush having screw-threaded stem c^6 and nuts c^7 and c^8 , and a spider-arm having arms c^2 and bridges c^3 c^4 , provided with openings c^5 , substantially as described.

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

WILLIAM N. SHARPNACK.
MICHAEL McMAHON.

Witnesses:

O. B. MONNETT,
JOHN L. TOBIAS.