R. M. BECKER.

GRAIN-SEPARATOR.

No. 181,303. Patented Aug. 22, 1876.

Fig. 1

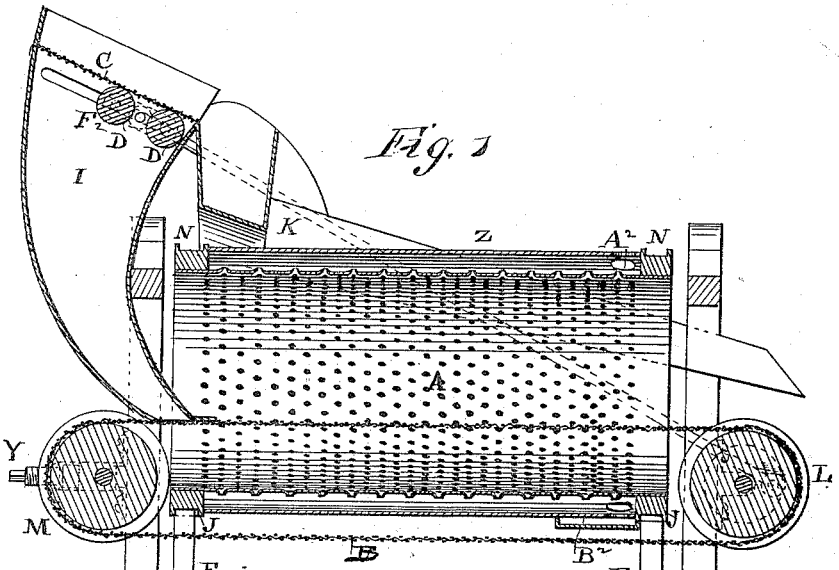


Fig. 3

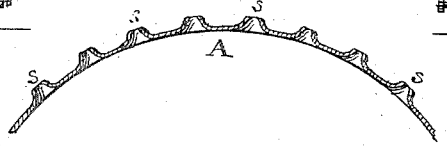
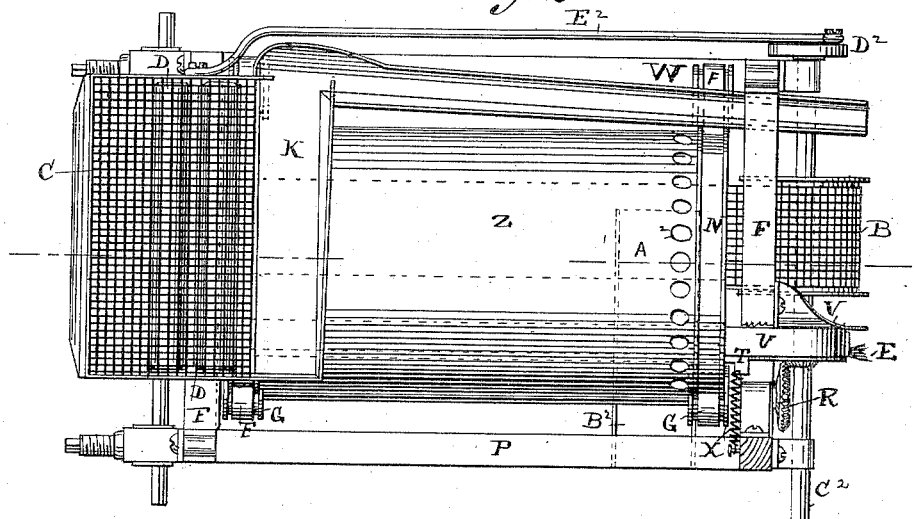


Fig. 2



Witnesses.
L. Van Risinick.
D. G. Stuart.

Inventor.
Robert M. Becker
by Russell Wallace
Atty.

UNITED STATES PATENT OFFICE.

ROBERT M. BECKER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO HERMANN KURTH, OF SAME PLACE.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **181,303**, dated August 22, 1876; application filed January 17, 1876.

To all whom it may concern:

Be it known that I, ROBERT M. BECKER, of the city of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Cockle-Separators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention consists in a combination of reciprocating, revolving, and endless-belt sieves, with automatic brushes and rollers for clearing the sieves from obstructions, so arranged as to separate cockle from wheat and other grains, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is an end view of the same. Fig. 3 is a sectional view, showing the corrugated surface of the cylindrical sleeve.

Referring to the parts by letters, A represents a revolving cylindrical sieve, formed of a single thickness of sheet metal, and having indentations *s* on its internal surface, at the bottom of which are perforations made of less diameter than the indentations, as shown in Fig. 3 of the drawings. B is an endless-belt sieve. C is a common sieve, which is so inclined that the grain will roll off one side. D D are automatic rollers, provided with rubber or other yielding surfaces, which have a reciprocating motion against the under surface of sieve C, and serve to clear it of obstructions. E is a brush attached to the cockle or catch belt U, and operates upon the inner surface of the cylindrical sieve A, to clear it of obstructions. F F are endless belts, which receive their motion from the pulley-wheels J J, running around the pulleys W W and G G, upon which two belts the cylindrical sieve A rests and revolves. I is a hopper or receiver, into which the fine grain and cockle pass through the sieve C. The plump and more perfect grain rolls off the inclined surface of the sieve C into the conductor K. L and M are pulleys, upon which the endless-belt sieve B moves. The pulleys L and M have an elastic or yielding surface, of rubber or other suitable material, which serves to clean the endless-belt sieve B as it moves over them. N N are flanges surrounding the cylindrical sieve A, in which the endless belts F move. The cylindrical sieve A rests entirely upon the endless belts F, and is revolved by their movement under it. O is a crank attached to the axle of the pulley L, upon which axle is a beveled gear, R, by which motion is transmitted to the pulley-wheels J J, thereby setting the endless belts F F in motion. The axle P of the pulleys J J extend to the opposite end of the machine, upon which axle there is a similar pulley and belt, which operate in a similar manner upon the cylindrical sieve A. U is a cockle-belt. T are standards, on which is supported the guide or support for the cockle-belt U, and extends the length of the cockle-belt from the pulley-wheel L to the pulley-wheel M. X is a spiral-wire spring attached to the supporter T. Y is a set-screw attached to the boxes of the axle of the pulley M, for the purpose of tightening the endless-belt sieve B. V is a partition extending lengthwise of the cylinder A, at the inner side of the catch-belt B, for preventing the material falling on the belt from escaping again into the cylinder A. Z is a plain metallic cylinder surrounding the cylindrical sieve A, which catches the grass and other fine seed that passes through the cylindrical sieve A. A^2 are openings in the lower end of the metallic cylinder Z, through which the grass and other fine seed escapes into the conductor B^2. C^2 is the axle to the pulley-wheel L. D^2 is an eccentric wheel attached to the axle C^2. E^2 is a crank attached to the eccentric wheel D^2 and the rollers D D, and communicates to them a reciprocating motion. There may also be a similar crank attached to the end of the rollers D D at F^2, and connected with the axle C^2 with a similar eccentric wheel.

The operation of the machine is as follows: The grain is deposited upon the inclined sieve C, where the first separation takes place, the large grain passing into the conductor K, and is thereby conveyed to a receptacle for the cleaned grain. The smaller grain and cockle

pass through the sieve C into the hopper I, and are deposited upon the endless-belt sieve B, where the second separation takes place, the largest grain being carried over the pulley L and deposited with that from the pulley K, and the finer grain and cockle pass through the sieve B, and are deposited upon the revolving cylindrical sieve A, where the third separation takes place, the best grain passing out at the lower end of the cylindrical sieve A, and the grass and other fine seeds pass through the small openings S in the indentations of the cylinder A, as shown by Fig. 3, which represents a section of the corrugated surface of the cylindrical sieve A. The grain and cockle remaining in the indentations in the sieve A, the openings at the bottoms of which are too small to permit their escape, are carried up on its side until they come in contact with the cockle or catch belt U, where the fourth and last separation takes place, the cockle or catch belt U causing the coarse grain to fall back out of the pockets, which are now tilted up, so as to permit it to fall back and pass toward the lower part of the cylinder A, until it has reached the opening at its lower end, where it drops out with the other separated grain, while the cockle is carried beneath the cockle or catch belt U, and falls out upon the cockle-belt U, which moves parallel with the endless-belt sieve B, and is by it thrown off, and the separation completed. The stationary partition V prevents the cockle from mixing with the grain as it falls from the revolving cylinder A upon the cockle-belt U.

Having thus described the operation of my machine, what I claim as new, and desire to secure by Letters Patent, is—

1. The cylindrical sieve A, formed of a single thickness of metal, and having indentations *s*, with perforations at the bottom of less diameter than the indentations, substantially as and for the purpose specified.

2. The sieve C, arranged to operate in combination with the rollers D, having a surface of rubber or other yielding material, and having a reciprocating motion, substantially as and for the purpose specified.

3. The endless-belt sieve B, arranged to operate in combination with the cylindrical sieve A, substantially as and for the purpose specified.

4. The combination of the sieve C with the reciprocating rubber rollers D, endless-belt sieve B, and cylindrical sieve A, substantially as and for the purpose specified.

5. The brush E, arranged to operate in combination with the belt U and cylindrical sieve A, substantially as and for the purpose specified.

6. The pulleys L M, having rubber or other yielding surfaces, as described, and arranged to operate in combination with the endless-belt sieve B, substantially as and for the purpose specified.

7. The pulleys W, J, and G and endless belts F, arranged to operate in combination with the cylindrical sieve A, having the flanges N, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

ROBERT M. BECKER.

Witnesses:
JAS. B. ERWIN,
K. SHAWVAN.