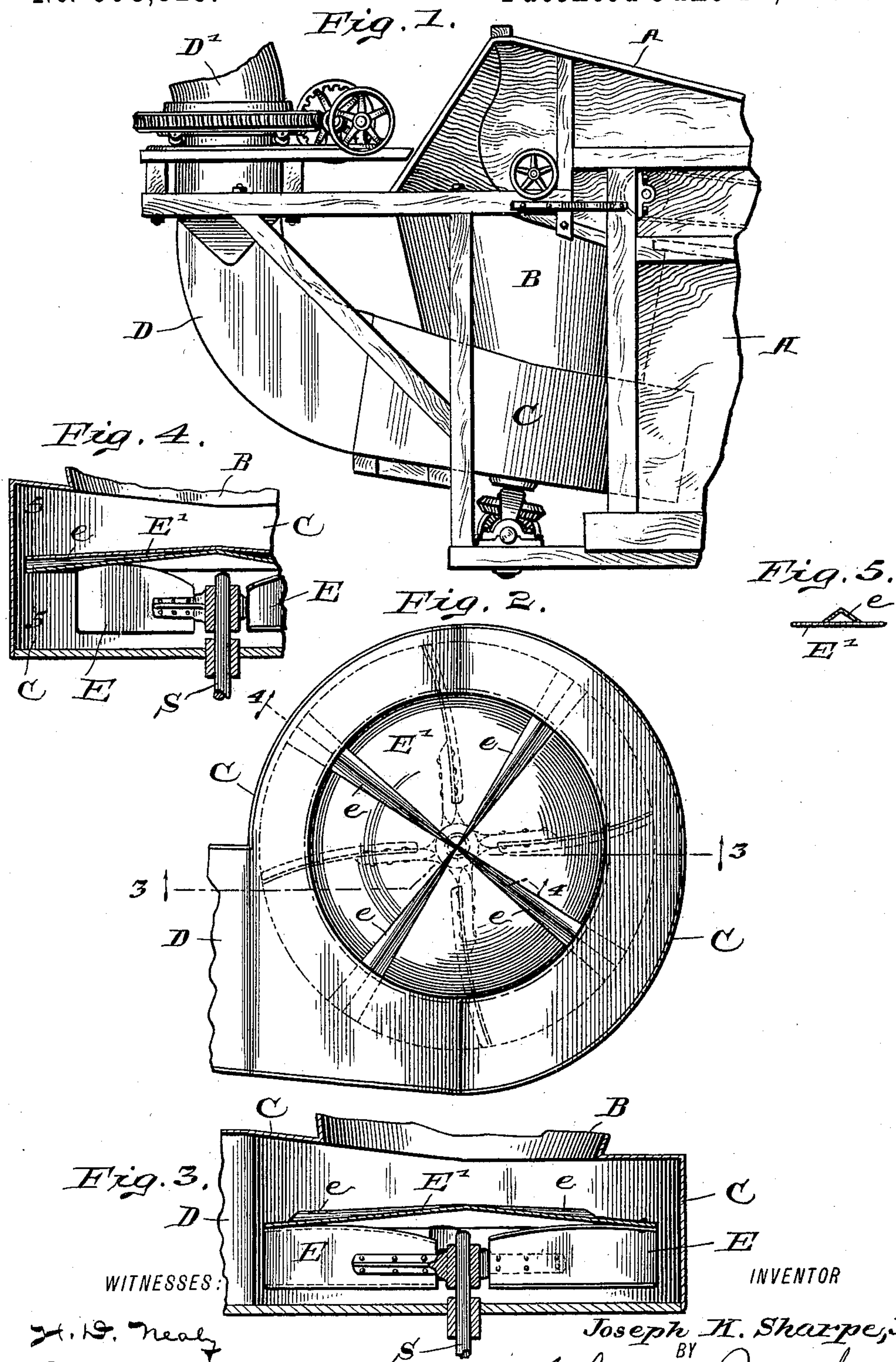


(No Model.)

J. K. SHARPE, Jr.
FAN FOR PNEUMATIC STRAW STACKERS.

No. 605,925.

Patented June 21, 1898.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH K. SHARPE, JR., OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE
INDIANA MANUFACTURING COMPANY, OF SAME PLACE.

FAN FOR PNEUMATIC STRAW-STACKERS.

SPECIFICATION forming part of Letters Patent No. 605,925, dated June 21, 1898.

Application filed March 23, 1897. Serial No. 628,811. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH K. SHARPE, Jr., a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Fans for Pneumatic Straw-Stackers, of which the following is a specification.

My said invention relates to blast-fans, and is especially designed for use in connection with pneumatic straw-stackers. In such machines experience has demonstrated that it is desirable to have the straw pass in through the eye of the fan-casing and out through the tangential discharge-opening of said fan-casing. Heretofore in fans so constructed as to accomplish this the straw has come in contact with the fan-blades. This has proved to be disadvantageous, both for the reason that the fan under such circumstances requires more power to drive it than where it runs free from contact with the material being operated upon and also that the straw is broken by such contact with the fan-blades, which reduces its value for many purposes. Plates or disks have heretofore been employed in certain varieties of blast-fans; but such plates or disks have been smaller than the eye of the fan, and consequently did not protect the fan-blades completely from contact with the material, nor did they serve to retain the air fully, so that what is known as "back pressure" or a partial outflow of the air through the eye has sometimes resulted. In all threshing-machines or separators there is a fan called the "cleaning-fan," its purpose being to separate the chaff and dust from the grain as it falls from the straw-rack to the shoe of the separator. Where pneumatic stackers are attached, the rear of the separator is inclosed, and a back pressure from the stacker-fan prevents the proper outflow of the blast from the cleaning-fan of the separator, with obviously disadvantageous results. With my improved fan, the disk being larger than the eye and completely covering the fan-blades, this is effectually prevented, and the air which once reaches the fan-blades is retained behind the disk until discharged through the egress-opening.

The objects of my invention are therefore

to produce a fan in which the straw may take the proper course, as above indicated, and at the same time be entirely protected from contact with the fan-blades, while also preventing back pressure. A blast-fan embodying my said invention will be first fully described and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters of reference indicate similar parts, Figure 1 is a side elevation of a fragment of a combined threshing-machine and pneumatic straw-stacker, the fan whereof is constructed in accordance with my invention; Fig. 2, a top or plan view of the fan structure separately; Fig. 3, a central sectional view of the same as seen from the dotted line 3 3 in Fig. 2; Fig. 4, a detail sectional view on the dotted line 4 4 in Fig. 2, and Fig. 5 a detail sectional view on the dotted line 5 5 in Fig. 4.

The operation of the machine as a whole, generally speaking, is the same as that of former machines of this general character and is as follows: The straw falls from the straw-carrying mechanism of the threshing-machine A, through the hopper-like chute B, to and into the fan-casing C, through its eye, and passes thence out through the neck D to the trunk or chute of the straw-stacker, of which a fragment D' of the lower section is shown in Fig. 1.

The fan-casing C is of substantially the usual construction, except that I prefer to enlarge it somewhat on one side, starting from the middle and rising gradually until it develops into the discharge tube or neck D, as is shown in the drawings. This gives a larger space for the straw to pass from the fan-casing into said neck, as will be readily seen by an inspection especially of Fig. 3. The eye or ingress-opening to said fan-casing is preferably much larger than is usual, so that the straw as it comes from the machine falls into it without difficulty irrespective of quantity.

The fan proper consists of a hub and wings mounted on a shaft S, as usual, said shaft being mounted and driven in any convenient manner. To the wings E of said fan I secure a large disk or plate E', which extends com-

pletely to the ends of the wings and is thus of a size considerably larger than the eye of the fan and (excepting the "clearance") of nearly the diameter of the fan-casing. The periphery of this disk is shown by the circular dotted line in Fig. 2, and, as will be observed, its diameter is approximately the same as the extreme spread of the fan-blades. This is also shown in the sectional Fig. 3. Obviously a plate or disk of this character completely protects the fan-blades from any contact with the straw. While it is not essential, I have found it of advantage to put ribs *e* upon the upper face of this plate or disk, as they seem to have the effect of moving the straw somewhat more promptly than the smooth disk. These ribs I have made of increasing size from the center to the periphery of the disk, as shown in Figs. 2 and 4, and roof-like in form, as best shown in Fig. 5. The disk I have shown also is slightly highest in the center above the end of the fan-shaft, but a perfectly flat disk is effective for the purpose, all as I have demonstrated by practical tests.

Having thus fully described my said inven-

tion, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, of the fan-casing formed with a central eye as an entrance and a peripheral discharge, a fan mounted therein with its blades extending beyond the edge of said eye, a disk mounted on the outside edge of said blades and formed of a diameter greater than that of said eye, whereby the material entering is prevented from contacting with said blades, and the driving mechanism, substantially as set forth.

2. The combination, of the fan-casing, the fan proper arranged to revolve therein, and a plate or disk secured upon said fan proper and covering the blades thereof, said plate or disk being provided with ribs to accelerate the motion of the straw, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 20th day of March, A. D. 1897.

JOSEPH K. SHARPE, JR. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.