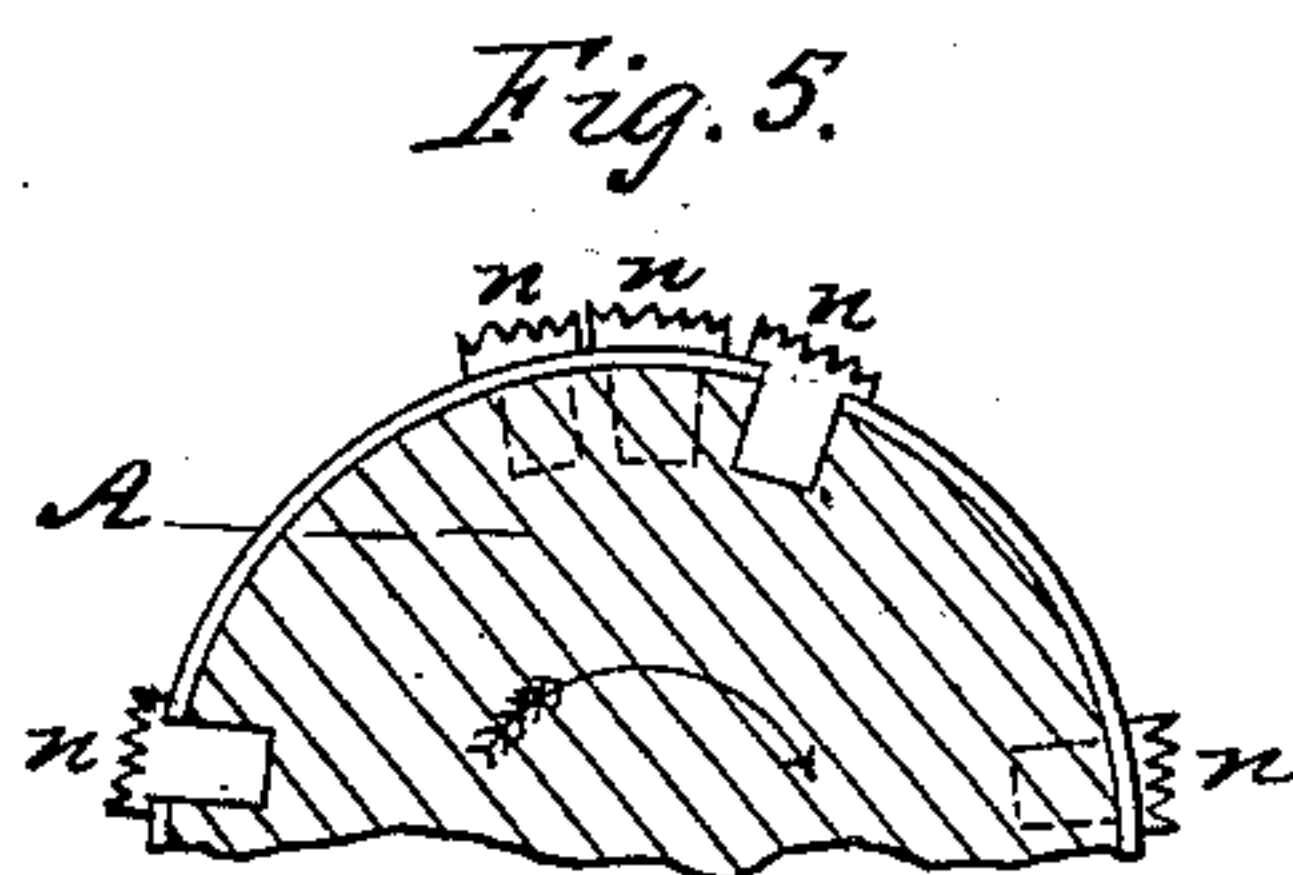
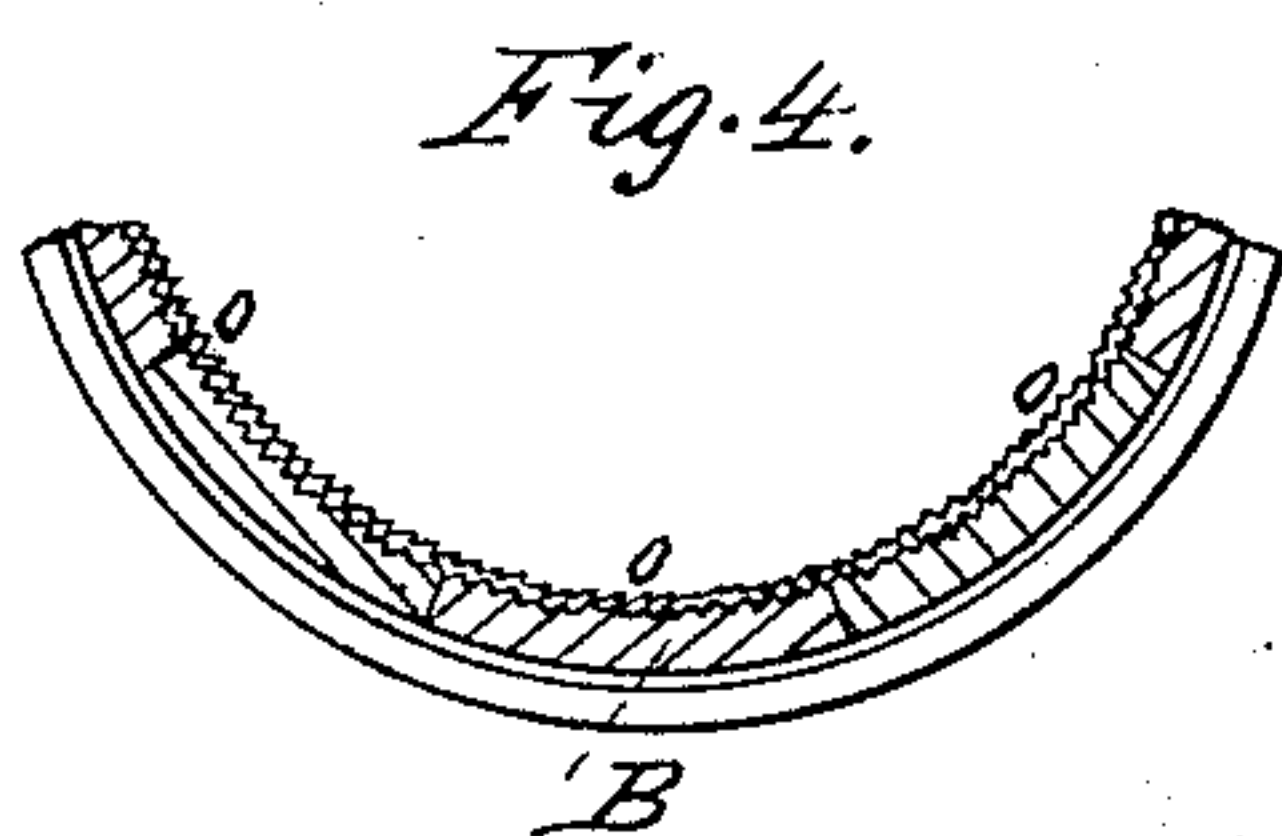
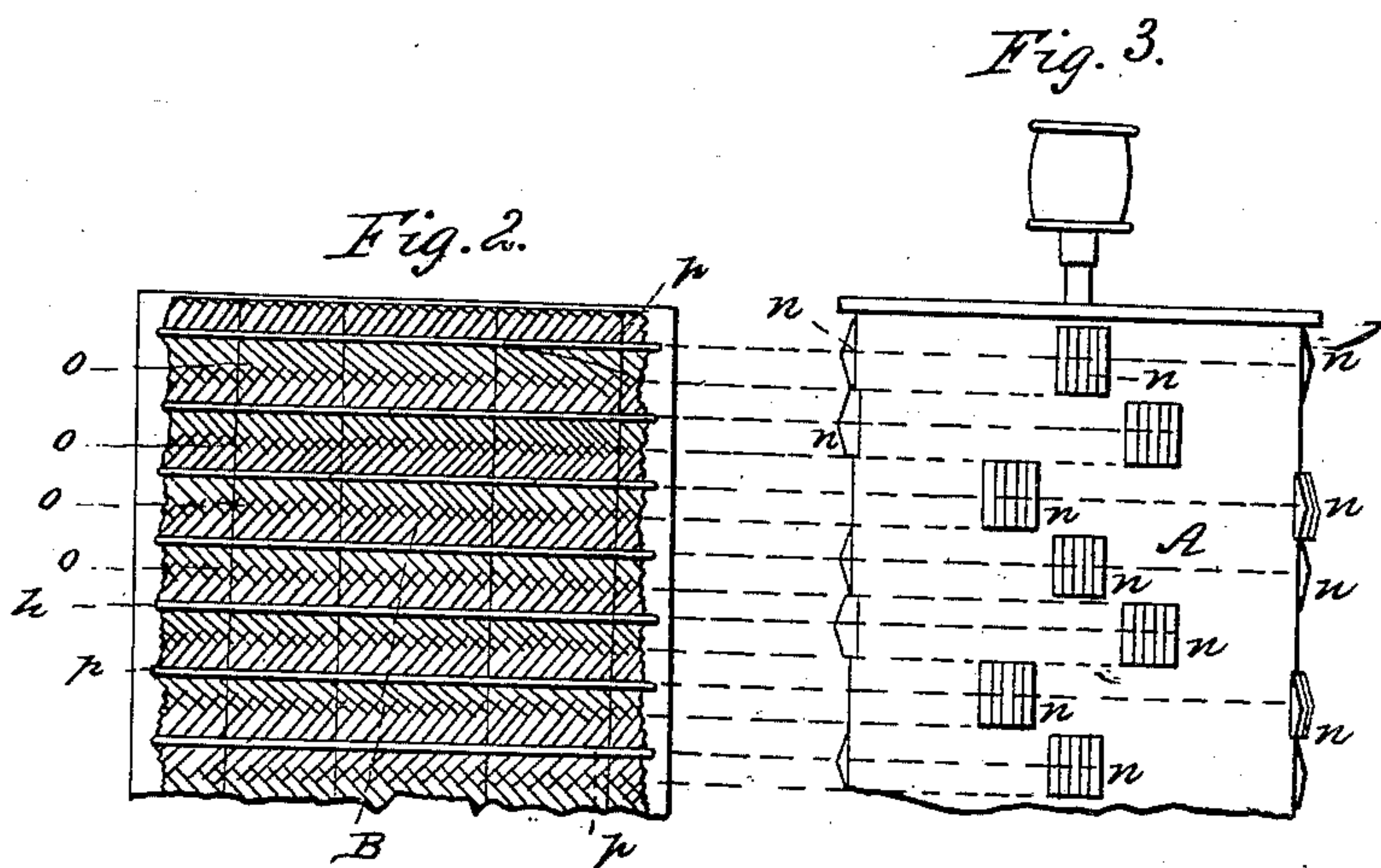
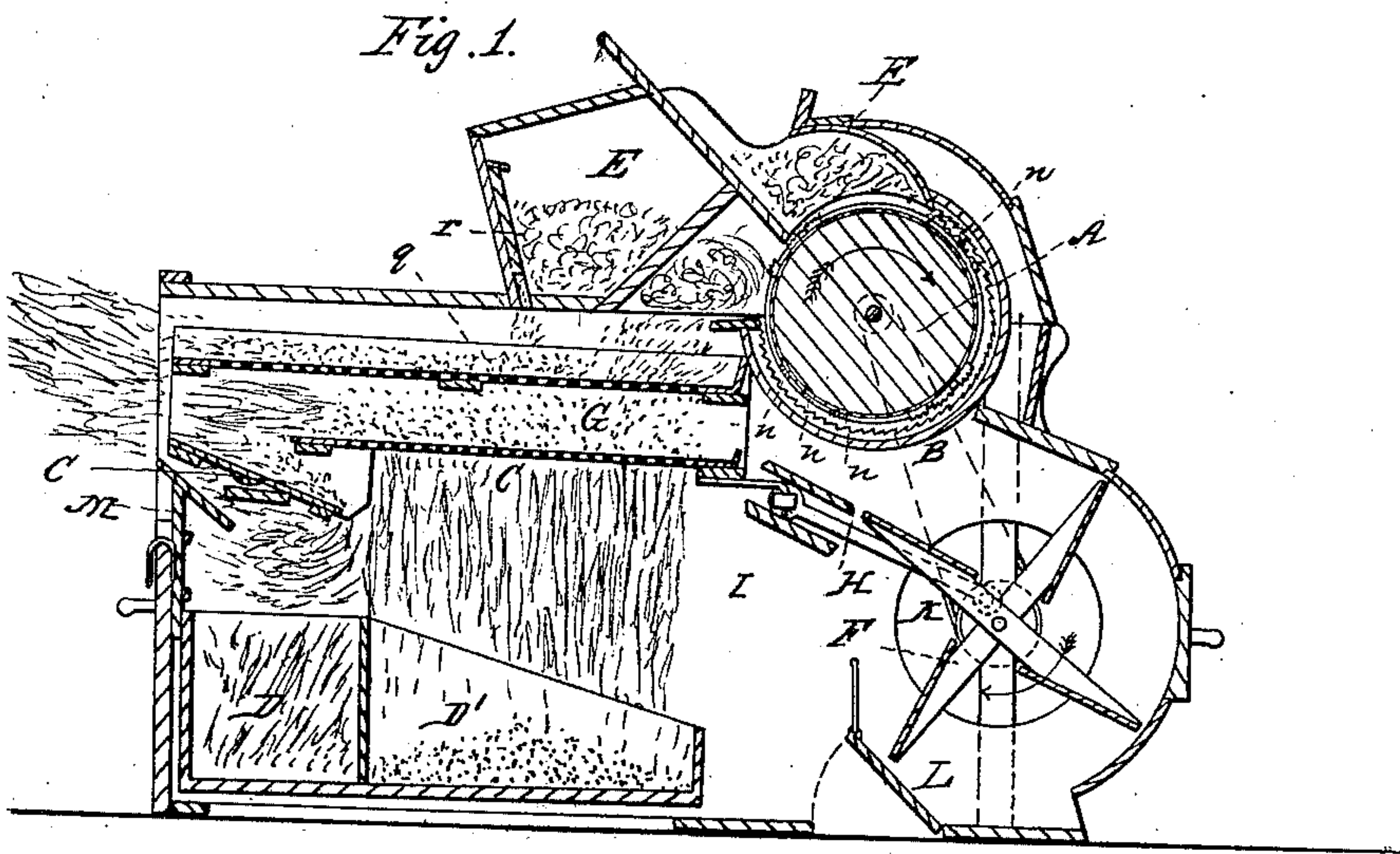


J. KUHN.
Clover Huller.

No. 32,630.

Patented June 25, 1861.



Witnesses:
John Reber
Peter Perry

Inventor:
Jacob Kuhn

UNITED STATES PATENT OFFICE.

JACOB KUHN, OF CENTERVILLE, PENNSYLVANIA.

MACHINE FOR HULLING AND CLEANING CLOVER-SEED.

Specification of Letters Patent No. 32,630, dated June 25, 1861.

To all whom it may concern:

Be it known that I, JACOB KUHN, of Centerville, in the county of Snyder and State of Pennsylvania, have invented a new and useful Improvement in Machines for Hulling and Cleaning Clover-Seed; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical longitudinal section of the improved machine; Fig. 2, a sectional plan-view of the interior of the concave; Fig. 3, a sectional side-view of the cylinder; and Figs. 4 and 5, transverse sections of portions of the said concave and cylinder, respectively, like letters, when on the different figures, indicating the same parts.

The nature of my invention consists, substantially as hereinafter described, in the manner of constructing the teeth of the cylinder, and also of those on the concave, whereby in operating together a more perfect and expeditious hulling effect is produced without mashing the seed, and greater durability in the required conditions of the said teeth or operating surfaces, of the said cylinder and concave, is attained.

My invention also consists in constructing the hopper in two distinct apartments opening, respectively, to the hulling and to the cleaning apartments of the machine, for the purpose of more safely expediting in the process of hulling and cleaning.

In the drawings, A is the cylinder; B, the concave; C C' the lower screen; D D' the receiving drawer; and E E' the two apartments in the hopper of the machine.

F represents the usual fan wheel; G the screen carrier; and H their coupling-bar, within the usual case I—the said bar connecting by a crank on the shaft of the said fan wheel. Power being applied to the pulley of the cylinder motion is thereby given to the screen carrier, and fan by means of a band K on the outer side of the case.

L, is an adjustable deflector for raising or lowering the direction of the blast, and M an adjustable slide for increasing or diminishing the outlet space for the blast.

The teeth $n-n$, of the cylinder (A) are formed on steel plugs which have double beveled, rectangular heads, the upper or beveled surfaces of which have V grooves and A edges or teeth cut in or on them parallel with each other. These plugs are driven radially into the cylinder so as to leave their heads only, projecting as seen in Figs. 1, 3, and 5,—the heads being made lower in front than in their rear, as seen in Fig. 5, and being also arranged around the cylinder in four parallel series, each series having about three rows of the heads arranged, along the cylinder, parallel with each other, yet so as to produce also the spiral arrangement of the heads, seen in Fig. 3—the grooves and teeth of each head being also parallel with the said rows, as seen in the same figure.

The concave (B) consists of a cast-iron shell (made in longitudinal sections) whose inner side consists of alternating beveled ridges, $v-v$, of double oblique teeth, and deep narrow grooves $p-p$, as seen in Fig. 2. The oblique grooves which produce the oblique teeth on each bevel of the ridges ($o-o$), cross each other at the apex of each ridge and thus produce a row of small pyramidal teeth thereon—as seen in the same figure.

When the cylinder (A) and concave (B) are arranged together, as seen in Fig. 1, the apexes, of the plug heads on which the teeth of the cylinder are formed, come directly opposite the grooves ($p-p$) of the concave (B), respectively; and the width of the said heads, corresponding with the width of the ridges ($o-o$),—the apexes of the said ridges ($o-o$) come directly opposite to the narrow spaces, respectively, between the heads ($n-n$) of the cylinder. It will therefore be seen that when the cylinder is rotated the feed will be carried by the inclined and beveled, toothed heads thereon, into the narrow space between the said cylinder and concave, and rolled between them so as to rapidly tear off the hulls, and that the seed, falling into the deep, narrow, grooves $p-p$, will immediately be carried around by the apexes of the heads ($n-n$) on the cylinder (A) aided by the currents of air created therein by the rapid motion of the said cylinder and finally thrown out upon the screen carrier G, with the hulls, as indicated in Fig. 1—the direction of the rotary motion of the said cylinder, being as indicated by the arrow.

The upper screen q , is coarse, and, keeping back the long chaff or fibers, allows any unhulled seed to pass through with the hulled seed, to the finer screen below it; which

screen (C) allows only the hulled seed to pass through it, and being divided into two parts, C, C', as seen in Fig. 1, the part C' is inclined inward and discharges the unhulled seed which falls upon it from the outer end of C, and causes the same to roll down into the division D, of the drawer below; while the cleaned seed falls into the division D'—the blast from the fan wheel (F) passing through and along both screens and driving out the dirt and chaff—as indicated in Fig. 1.

The two apartments, E and E', of the "hopper", being constructed as shown in Fig. 1, serve as follows: The apartment E' is used to supply to the cylinder and concave, the original feed, and such unhulled portions as may fall into the division D of the drawer, from the screen C' above, it as before described; while at the same time, any chaff which may be found among the hulled seed in division D' of the drawer and requiring the same to be again winnowed, can be readily separated without passing it again through the huller—at the risk of crushing some of the seeds—by transferring the whole to the division E, of the hopper, from whence it will, below the slide *r*, therein, fall directly and gradually to the screens and blast—as indicated in Fig. 1.

The whole apparatus is simple in con-

struction, and can be easily managed and kept in perfect order for the purpose.

What I claim as new therein, of my invention, and desire to secure by Letters Patent, is—

1. Constructing the teeth (*n—n*) of the cylinder (A), in the manner or form set forth and described; the same being arranged thereon in relation to each other, in the manner specified.

2. Constructing the inner side of the concave (B), with the ridges *o—o* of teeth, and the grooves *p—p*, between the said ridges, as set forth and described, and for the purpose of receiving, and operating in combination with a rotating cylinder provided with teeth *n—n*, constructed substantially as described.

3. Making the hopper with the two distinct apartments E E', as set forth, the apartment E, being fitted with the adjustable slide *r*, for regulating, and allowing the discharge of the contents of the said apartment, only into the screen carrier below, while the apartment E' communicates only with the huller, as and for the purposes specified.

JACOB KUHN.

Witnesses:

JOHN REBER,

PETER BERRY.