New Inventions.

Improvement in Grain Separators.

The annexed engravings are views of an improvement on smut and grain separators, for which a patent was granted to John D. Bedwell, of Urichsville, Ohio, on the 24th of October last.

Figure 1 is a vertical section of the machine, and figure 2 is a horizontal section of the stationary and revolving smut cylinders. Similar letters refer to like parts.

A is a frame which supports the several parts of the machine ; B is a fan box placed directly under a platform, *a*, of the frame, and C is a curved trunk, one end of which commences near the bottom of one side of the fan box, and passes upward and forms a curve and descends at the bottom of the fan box opposite to the side first mentioned. D is the fan placed within the fan box, B, and hung upon a vertical shaft, E. On the lower part of the shaft, E, there is a pulley, F ; the shaft, E, extends upward through an air tight box, G, which is placed on the upper part of the platform directly above the fan box, B. The box, G, communicates with the trunk, C, by means of a horizontal passage, H. This passage also communicates with the fan box, B. On the shaft, E, and within the box, G, there is placed a cylinder, I, which is formed of a series of flat metal bars, *b*, secured vertically to top and bottom heads, *c c* These bars are so attached to the heads, *c c*, as to overlap each other, and the outer edges of the bars in an operating machine, may be about half an inch distant from each other, the space between the bars being sufficiently small to prevent grain from passing through, but at the same time admitting a current of air.—Around the cylinder, I, and within the box, G, there is a stationary cylinder, J, constructed precisely similar to the cylinder, I, with the exception that the bars, *b*, may be placed closer together, so that the spaces between them are not more than one-sixteenth of an inch apart. The space between the two cylinders, I J, may be about half an inch, and from this space a spout, K, leads into the trunk, C ; L is a valve at the upper part of the trunk, C. At the upper part of the box, G, there is an opening, *d*, through which the grain is admitted into the space between the two cylinders, I J.

Operation—Motion is given the fan, D, and the cylinder, I, by means of a belt passing around a pulley, F, and the grain to be cleansed is poured into the space between the two cylinders, I J, through the opening, *d*, as the cylinder, I, rotates, the smut is scoured from the grain, and pulverized or broken by means of the edges of the bars, *b*, which give a corrugated surface to the cylinders. The fan, D, causes a current of air to pass through the trunk, as indicated by arrows, 2, the grain indicated by arrows, 1, passes from the cylinders down the spout, K, into the trunk, C, where it is subjected to the blast which carries upward in the trunk, the smut, dirt, chess, etc., indicated by arrows, 3, and the grain separated from impurities falls from the trunk. Certain portions of the smut and dirt also pass through the cylinder, I, and is drawn down into the fan box, B, by the action of the fan, and forced out a passage represented by *e*, at the side of the fan box. The portions of smut, dirt, chess, etc., that followed the grain into the trunk, are carried over the curve at the upper part of the trunk, and the smut, dirt, and light particles are drawn into the fan box, B, at the connection of the passage, H, with the trunk, while the heavier substances of some value, such as chess, light grain, etc., see arrows 2′, will resist the power of the current, and fall from the spout at the end opposite to that from which the perfect grain passed. By regulating the valve, L, at the upper part of the trunk, C, the blast or current within said trunk may be increased or diminished, as desired.

This valve is to obviate any evil from excess of fan motion ; it is self-adjusting, and opens by outside atmospheric pressure, and suction draft along the trunk, C, so that when the blast is too strong, and carries over wheat, by giving the movable screw weight on the end of the lever of the valve, L, a few turns, it is brought nearer the valve, and allows of it being opened by excess of blast, to prevent the wheat being carried over.

By the above invention the grain is thoroughly cleansed from all impurities, and the sound grain, smut, and dirt, and chess, and imperfect or light grain are separated from each other. By this arrangement the smut is more rapidly and thoroughly expelled or drawn off, and separated from the grain whilst scouring through the meshes or spaces of the two bar cylinders, thereby avoiding discoloration of the wheat by loose smut adhering to the blossom ends of it, and whereby the wheat is more perfectly separated and cleansed from smut, dirt, and other impurities.

The patentee informs us that he is now building these machines, and has constructed a number, every one of which has given the most entire satisfaction.

More information may be obtained by letter addressed to him at the above-named place.

SMUT AND GRAIN SEPARATOR.

Fig. 1

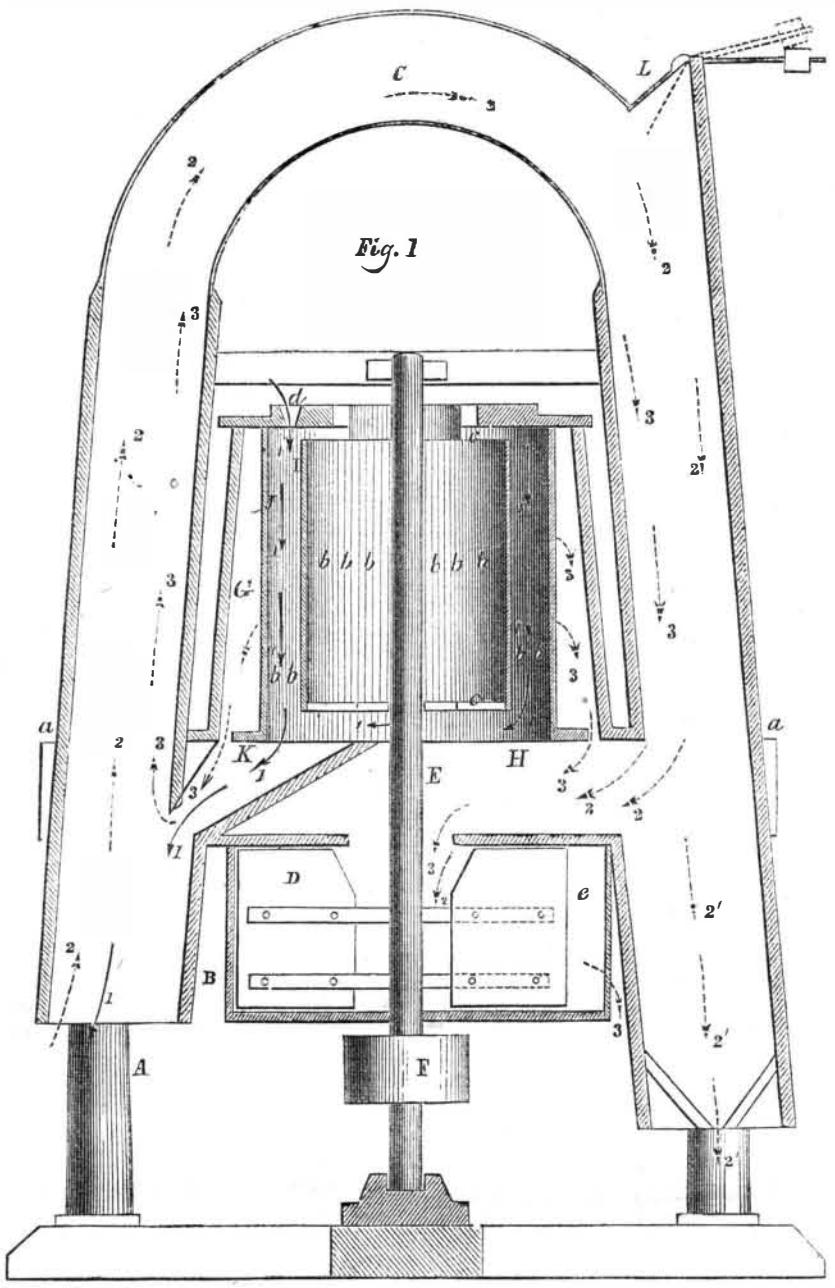
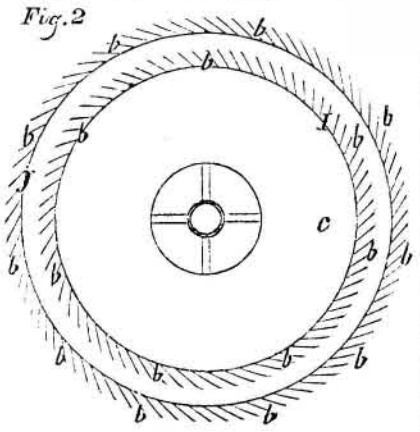
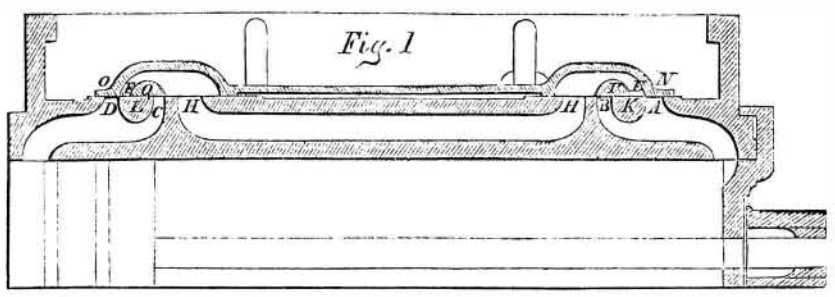


Fig. 2



IMPROVED SLIDE VALVE.

Fig. 1



The annexed figure is a longitudinal vertical section of an improvement in slide valves for steam engines, for which a patent was granted to W. C. Hicks, of Hartford, Conn., on the 9th of Jan. last. The figure shows a section of the valve seat, the latter being cast on the side of the cylinder, and the valve moving on its face steam-tight.

A B C D are posts connecting with the ends of the cylinder. A and D for admitting, A B C and D for exhausting steam from the cylinder. K and L are bars solid with the cylinder. H is an exhaust flue connecting with the air heater or condenser. N P Q O is the valve with the bars, P Q, cast across its face and solid with it. E and F are exhaust passages. The valve moves to the right far enough to open the post, D, then to the left to open the port.

Some engineers make large steam ports for exhausting rapidly ; this requires an increase of valve and throw of the eccentric ; this valve obtains the same object with a short throw. As the inlet ports are not required to be so large as the exhaust, the valve combines the narrow inlet and large exhaust ports. The patentee has practically tested this valve for some time, with a great saving, he assures us, of fuel. No more explanation is necessary, as the figure renders the matter clear to every mechanic.

More information may be obtained by letter addressed to Mr. Hicks, at Hartford.

Gates of Water Wheels.

The claim for an improvement in gates for water wheels, in this week's list, for which a patent has been granted to Geo. N. Todd, of Dundaff, Penn., embraces the regulating of the space of the water gate by a float, to equalize the quantity of water flowing on to the wheel, although the volume of supply may be irregular. The gate swings on gudgeons at the top, like a clapper valve ; to its lower end is attached a chain, secured to an oscillating lever an a horizontal shaft, which lever is also attached to another chain connected with a float, resting in the supply water, and rises and falls according as its volume is increased or diminished, which thus operates the lever named, and actuates the chain attached to the bottom of the gate, so as to draw it further from or allow it to be pressed closer to its seat, to increase and diminish the water opening.

Improved Skate.

Although the winter is fast merging into spring, and although we heartily hope that good skating is over within these diggings, the improvements in the construction of skates, for which two patents have just been granted to N. C. Sanford, of Meriden, Conn., must not be forgotten by those who reside further to the North. The simple object of these inventions is to give the skate elasticity so as to enable a person to skate with more ease. Small tubes are placed vertically within the stock of each skate. In these tubes are placed india rubber springs connected with knees secured to the runner, which is also thereby firmly attached to the stock, by which it gives some spring to the foot, and its use is thereby rendered more easy.

The second patent embraces the dividing of the skate, and connecting the two parts by a spring, and having the runner elastic, whereby the skate yields, and the back part rises with the heel, when the weight of the body is thrown upon the front part of the skate.

Improved Straw Cutter.

The claims on another page for an improved straw cutter, the invention of Jas. H. Bennett, of Bennington, Vt., relates to the kind of straw cutters employing a straight knife set in a lever, and moving in the arc of a circle. The knife stock is set in a vertical oblong slot cut through the main timber of the frame, and working on a pivot in the slot. By this arrangement the knife is guided and kept steady while operating. There is a flat spring arranged over the front part of the oblong slot, and the knife is so bevelled, that when its lever is lowered, it—the knife—bears upon the upper side of the flat spring, while the underside of the lever bears upon its top, thereby keeping the cutting-knife close up to the steel guard, thus making it cut in a superior manner. The said spring, in case of clogging, yields slightly, and its re-action after a cut assists the operator in raising the lever which operates the knife.

Chimney Safes.

The chimney safe of Geo. B. Clark, of Leonardsville, N. Y., whose claim is on another page, is designed for a better regulation of the draft, and the prevention of fires in chimneys. A box is placed in the chimney when it is built, and it is so provided with dampers as to regulate draft. It has also a receiver to catch and convey away any rain that might enter the chimney. It is designed to be put in the chimney when the building is being erected.