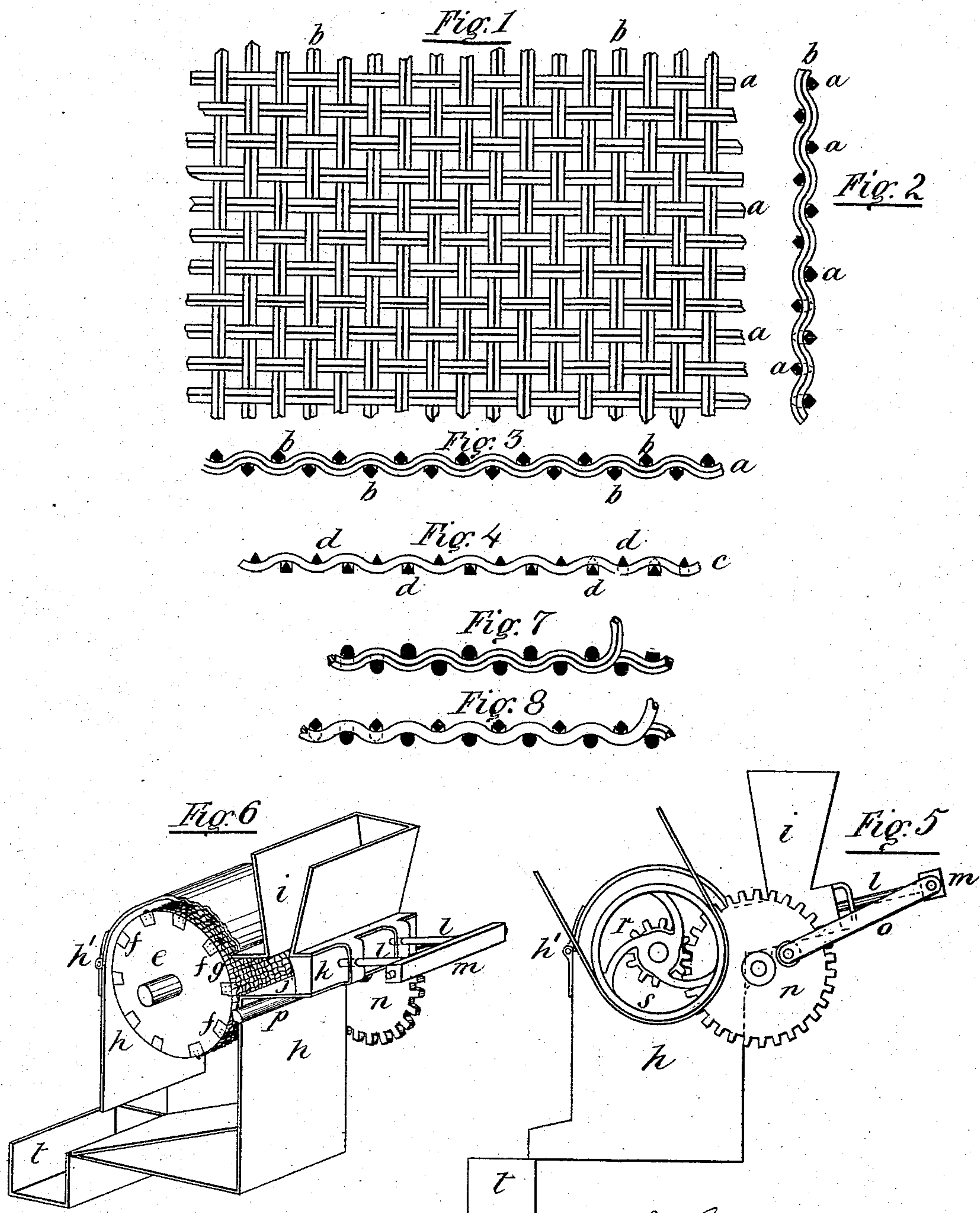


(No Model.)

S. C. MEYER.  
Sharp Edged Wire Cloth and Application of Same to  
Grating and Pulping Machines.

No. 241,557.

Patented May 17, 1881.



Witnesses  
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*Att'y.*



# UNITED STATES PATENT OFFICE.

S. CHARLES MEYER, OF NEW YORK, N. Y.

SHARP-EDGED-WIRE CLOTH, AND APPLICATION OF SAME TO GRATING AND PULPING MACHINES.

SPECIFICATION forming part of Letters Patent No. 241,557, dated May 17, 1881.

Application filed September 10, 1880. (No model.) Patented in France February 9, 1879, and in Belgium May 14, 1879.

*To all whom it may concern:*

Be it known that I, S. CHARLES MEYER, of New York, county and State of New York, have invented a certain new and useful Improved Sharp-Edged-Wire Cloth, and Application of Same to Grating and Pulping Machines, (for which a patent was issued in France February 9, 1879, and in Belgium May 14, 1879, and applications for patents made in Russia, Germany, and Austria about the same time,) of which the following is a specification.

This invention relates to pulping or grinding machines; and it consists in the application of wire-cloth to the periphery of a rotating cylinder, said wire-cloth being composed of square or sharp-edged wire, which is so arranged in the woof and weft of the cloth that the sharp edges of the wire are presented at both sides of the cloth, so that when the sharp edges are worn off at one side the cloth may be reversed on the cylinder. The vegetable, cereal, or fruit to be ground or converted into a pulpus condition is pressed against the undulatory sharp cutting-edges of the cylinder formed by the sharp-edged-wire cloth wrapped around and secured to it by means of an automatically operated pusher.

It is preferable to make the wire-cloth of steel wire, as it is stiffer, stronger, and more durable than any other common metal.

To enable others skilled in the art to which this invention appertains to make and use the same, I will now give such a full, clear, and exact description thereof as will meet this end, referring therein to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a piece of wire-cloth, the woof and weft of which is composed of square or triangular wire. Fig. 2 is a section of the same, cut through the line *x x*, representing the cloth as made of square wire. Fig. 3 is another section, cut through the line *y y*, also representing it as made of square wire. Fig. 4 is a section representing the cloth as made of triangular wire. Fig. 5 is an end view of a pulping-machine made in accordance with the second part of my invention. Fig. 6 is a perspective view of the same with the end of the case cut away to show the construction of the internal parts, and Figs. 7 and 8 show further

modifications in the construction of the wire-cloth.

The wire-cloth is manufactured in the ordinary manner well-known to those skilled in the art, with the exception that the woof *a a* and weft *b b* are made of square wire, as shown at Figs. 2 and 3. Fig. 2 shows the weft in full and the woof in section, and Fig. 3 shows the woof in full and the weft in section, clearly indicating the manner in which the square wires are arranged, with one of the corners or sharp edges of the wires exposed at the surface of the cloth thereby presenting a series of undulatory sharp cutting-edges to the material abraded thereby, so that the fibers of it are cut into minute particles, and the whole converted into a pulpus state if of a moist nature.

The wire-cloth, made as above described, is shown applied to the cylinder of a pulping or grinding machine in the perspective view, Fig. 6, of which Fig. 5 is an end view.

The cylinder *e* is made of cast-iron, having strips of wood *f f* fitted into grooves cut longitudinally in its periphery. The wire-cloth *g*, with the sharp edges on the outside, is placed around the cylinder and securely fastened thereto by means of hooked spikes or staples driven in the wooden strips *f f*. This cylinder *e* is fitted to rotate in bearings in the end plate of the case *h*, and the top of the core is constructed to be removed or thrown back on the hinge *h'*, to allow the cylinder to be readily removed for the purpose of cleaning it, &c.

At the front of the core *e* is placed the hopper *i*, in which the vegetable or other material to be acted upon is placed, and the bottom of this hopper is connected to the inside of the case by the passage-way *j*, through which the material is pressed up to the cloth-wire-covered cylinder as it falls from the hopper into the passage-way by means of the reciprocating plunger or pusher *k*.

Two or more rods, *l l*, working in guides on the front end of the passage-way *j*, are connected to the bar *m*, the ends of which are joined to crank-pins on the wheels *n n* by the connecting-rods *o o*. These wheels *n n* are secured to the ends of the shaft *p*. They are provided with teeth, which mesh into the teeth of the pinion *r*, secured to the shaft of the cylinder *e*, by means of which they are caused to



rotate and work the plunger or pusher *k* to and from the cylinder *e*. The cylinder *e* receives its motion from the belt running over the pulley *s*. It is caused to revolve at a high rate of speed for most purposes to which such machines are applied, and the proportion of the pinion *r* to the wheel *n* is such that the pusher *k* forces the material against the cylinder *e* as fast as it is able to accomplish its work. The pulp, &c., as formed by the cylinder, falls down to the inclined bottom of the case and out of the opening at its rear side into the trough *t*, from which it is taken to the presses or other devices for its after treatment.

Pulping-machines having sharp-edged-wire-cloth-covered cylinders have demonstrated the fact that such a grinding or pulping surface performs its work in a much more efficient manner than is done by pulping-machines as ordinarily made, the gain being as high as twenty per cent. in the amount of sugar obtained from beet-roots and in cider from apples.

The wire-cloth may be made continuous or cylindrical in form to fit over the cylinder of the pulping-machine, thus avoiding the free edges which require to be secured firmly to the cylinder for the cloth to retain its position on the cylinder.

In making the wire-cloth from square wire certain advantages arise therefrom, as both surfaces of it present undulatory sharp edges,

as shown in Figs. 2 and 3, and may be employed for grating and pulping purposes by turning it around after the one side has worn out.

What I claim, and desire to secure by Letters Patent, is—

1. The square-wire woof *a a* and the square-wire weft *b b*, combined, substantially as described, to form a wire-cloth having undulatory sharp cutting or scraping edges at both of its sides, as and for the purposes hereinbefore set forth.

2. In a pulping-machine, in combination with the revolving cylinder *e*, the wire-cloth *g*, made substantially in the manner described, with undulatory sharp cutting or scraping edges in both the woof and the weft of its exposed surface, as and for the purposes hereinbefore set forth.

3. The combination of the cylinder *e*, provided with a sharp-edged-wire cloth covering, the passage *j*, hopper *i*, and pusher *k*, constructed and operated substantially as and for the purpose hereinbefore set forth.

In witness whereof I have hereunto set my hand this 8th day of September, A. D. 1880.

S. C. MEYER.

In presence of—

JOHN D. SHEDLOCK,  
H. D. WILLIAMS.