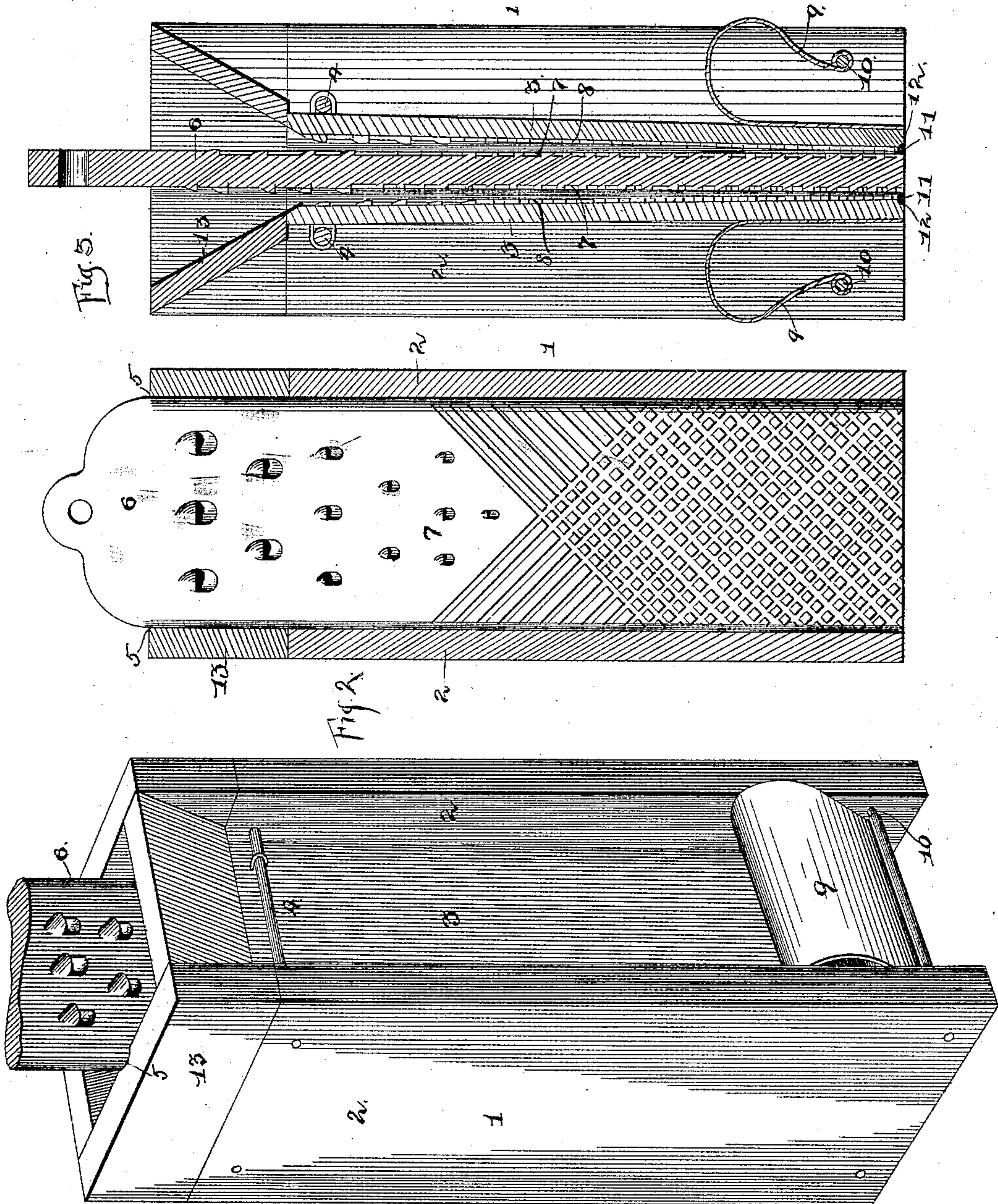


(No Model.)

E. D. PHILLIPS.  
FEED GRINDER.

No. 443,000.

Patented Dec. 16, 1890.



Witnesses

*Horace A. Sizer*  
*H. A. Sizer*

Fig. 1

By his Attorneys,

*C. A. Snow & Co.*

Inventor

*Edward D. Phillips*



# UNITED STATES PATENT OFFICE.

EDWARD D. PHILLIPS, OF MINERAL POINT, WISCONSIN, ASSIGNOR OF ONE-HALF TO CHARLES GOETZ, OF SAME PLACE.

## FEED-GRINDER.

SPECIFICATION forming part of Letters Patent No. 443,000, dated December 16, 1890.

Application filed May 16, 1890. Serial No. 352,018. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD D. PHILLIPS a citizen of the United States, residing at Mineral Point, in the county of Iowa and State of Wisconsin, have invented a new and useful Feed-Grinder, of which the following is a specification.

The invention relates to improvements in feed-grinders.

The object of the present invention is to simplify and improve the construction of feed-grinders and enable their grinding-surfaces to be automatically yielding, and to prevent them coming into actual contact with each other and destroying their faces.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a feed-grinder constructed in accordance with this invention. Fig. 2 is a vertical sectional view. Fig. 3 is a similar view taken at right angles to Fig. 2.

Referring to the accompanying drawings, 1 designates the grinder-frame, which is constructed of suitable material and composed of the stationary sides 2 and the hinged sides 3, that are arranged between the stationary sides 2 a suitable distance from their longitudinal edges, and are hinged to the stationary sides by bars 4, securing the upper portion of the frame together.

The stationary side bars 2 of the frame are provided with oppositely-disposed longitudinal grooves 5, which form ways for a vertically-movable grinder 6, that is centrally mounted in the frame, and is designed to be suitably connected with a windmill-power to operate the grinding-mill. The grinder 6, which is vertically movable in the ways 5 of the side bars 2, has rasp or grinding surfaces 7, that are coarsest at their upper ends, where they first come in contact with the grain to be ground, and they gradually increase in fineness. The hinged sides 3 are provided with similarly-constructed grinding-surfaces 8, which are automatically adjusted and maintained in a position close to the grinding-faces of the vertically-movable grinder 6 by curved

springs 9, each of which has one end secured to a bar 10 and the other end arranged to engage the lower ends of the hinged sides, and the inward movement of the hinged sides is limited by rods 11, which are engaged by rabbeted portions 12, in which the rods 11 lie when the hinged sides are closest to the vertically-movable grinder. By this construction the hinged sides are rendered automatically yielding, but their grinding-surfaces are prevented coming into actual contact with the grinding-surfaces of the vertically-movable grinder. The bars 10 have their ends secured in the stationary sides of the frame, and they serve to support, strengthen, and secure the lower end of the frame. The upper end of the frame is provided with a hopper 13, into which the grain to be ground is fed, and it will readily be seen that the mill is simple and inexpensive in construction and has its grinding-faces arranged to engage the grain automatically and prevented coming in contact with each other and being injured thereby. The grooves or ways 5 are curved and the vertically-movable grinder 6 is slightly wider than the hinged sides and has its longitudinal edges rounded and fitting snugly in the curved grooves.

From the foregoing description and the accompanying drawings, the construction, operation, and advantages of the invention will readily be understood.

What I claim is—

1. In a feed-grinder, the combination of the stationary sides provided with oppositely-disposed grooves or ways 5, the vertically-movable grinder 6, sliding in the grooves or ways and having its faces provided with grinding-surfaces, the sides 3, arranged upon opposite sides of the vertically-movable grinder and provided with grinding-faces and having their upper ends hinged and their lower ends free, and the springs bearing against the free lower ends of the sides 3, whereby an automatically-yielding grinding-surface is provided, substantially as described.

2. In a feed-grinder, the combination of the stationary sides 2, provided with the oppositely-disposed grooves or ways 5, the yielding sides 3, having their upper ends hinged between the stationary sides 2 and provided

with the grinding-faces 8, the curved springs 9, each having one of their ends secured to the bars 10 and having the free end engaging the adjacent hinged side, the rods 11, arranged  
5 to limit the inward movement of the hinged sides, and the vertically-movable grinder mounted in the grooves or ways 5, substantially as described.

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

EDWARD D. PHILLIPS.

Witnesses:

E. Y. HUTCHISON,  
MILLER HUTCHISON.