(No Model.)

J. HURT & A. M. STRATHERN.

FEEDING APPARATUS FOR GRAIN MILLS, &c.

No. 266,157. Patented Oct. 17, 1882.

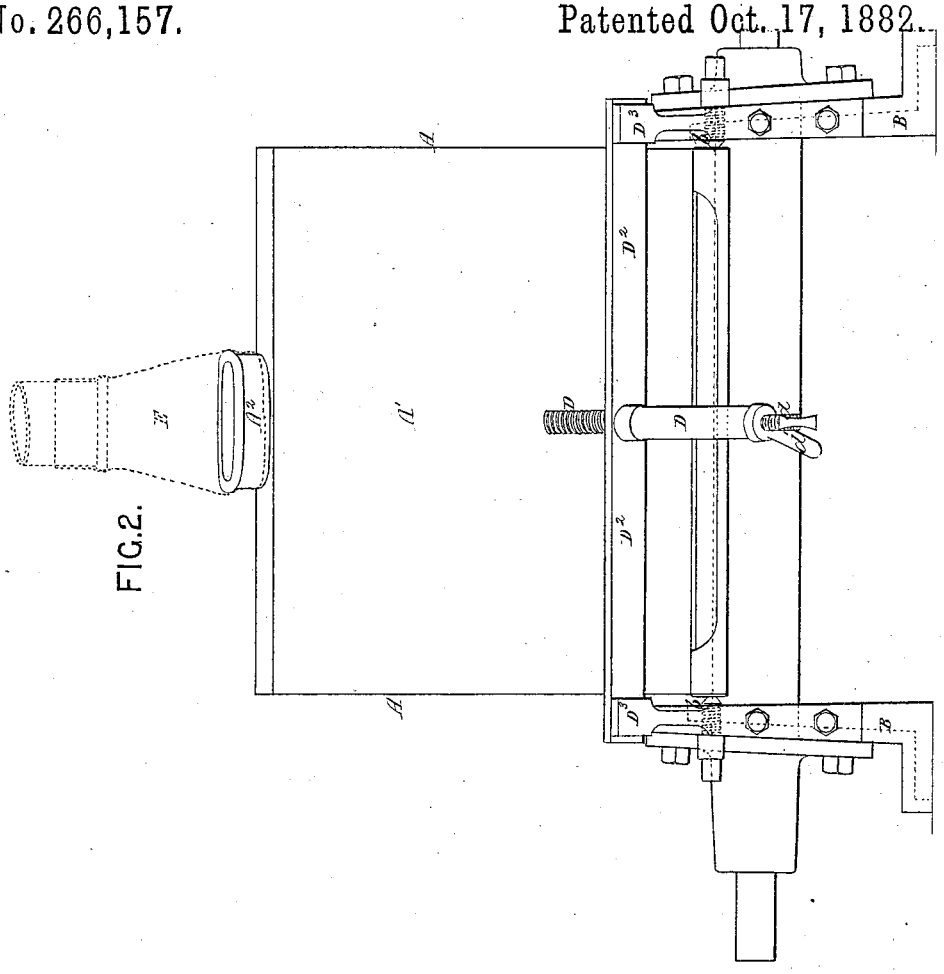

FIG. 2.

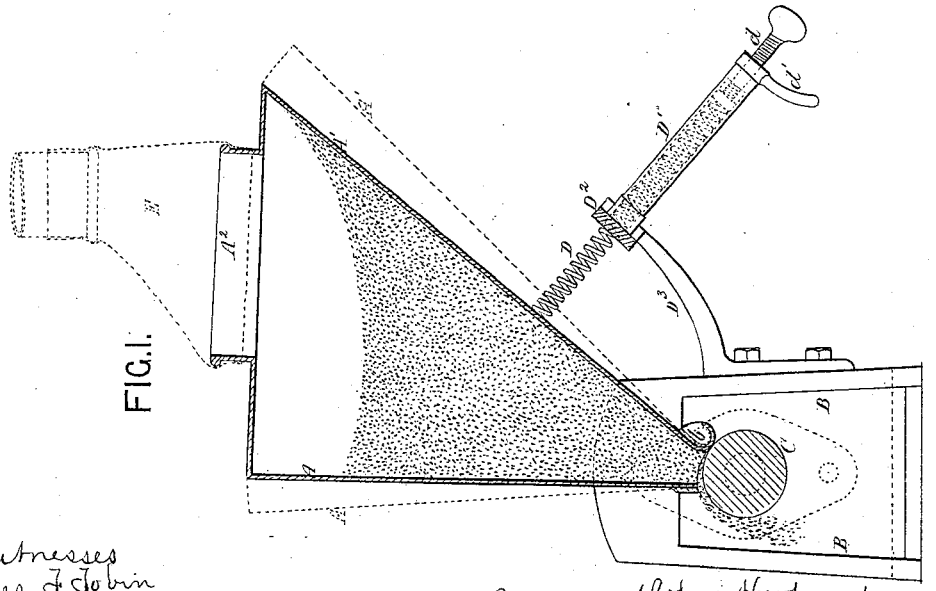

FIG. 1.

Witnesses
James F. Tobin
Harry Drury

Inventors { John Hurt and Alex M. Strathern by their Attorneys Howson and Sons

UNITED STATES PATENT OFFICE.

JOHN HURT AND ALEXANDER MORTON STRATHERN, OF GLASGOW, SCOTLAND, ASSIGNORS TO SAID HURT.

FEEDING APPARATUS FOR GRAIN-MILLS, &c.

SPECIFICATION forming part of Letters Patent No. 266,157, dated October 17, 1882.

Application filed September 5, 1882. (No model.) Patented in England December 28, 1881, No. 5,699.

To all whom it may concern:

Be it known that we, JOHN HURT and ALEXANDER MORTON STRATHERN, subjects of the Queen of Great Britain and Ireland, and residing in Glasgow, Scotland, have invented certain Improvements in Feeding Apparatus for Grain-Mills and Flour-Dressing Machines, (for which we have obtained a patent in Great Britain, dated December 28, 1881, No. 5,699,) of which the following is a specification.

This invention has reference to improved means or appliances for feeding grain or granular substances into grain-crushing mills or grinding-rollers, purifiers, or into other grinding or dressing machinery where continuous and regular feeding is required.

In carrying out the invention a single simple feeding-hopper is fitted over the feeding-roller of the mill, into which the grain or granular substance is supplied in an approximately regular stream from the supply-hopper or elevators above. The amount and weight of the grain material supplied to this feeding-hopper is caused to oscillate or tilt it on a fulcrum against the power of a small counterpoise spring or weight, and thereby open or close the lower feeding-in edge of the front of the hopper in relation to the surface of the feeding-roller. By this means the material is fed through in a regular thin stream, increasing or diminishing in proportion to the weight of the material in the hopper for the time being.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a vertical section through the feeding-hopper A, and Fig. 2 is a back view.

The improved apparatus consists of a feeding-hopper, A, with one side, A′, at a different angle from the other, hinged or fulcrumed at the side A′ by means of pivot-centers *b* passing through side cheeks or standards, B, fixed over the framing of the grinding-rolls. The lower feeding-edge of the vertical side A of the hopper is made to rest, when out of action, on the usual feed-roller, C, of the grinding-rolls; but when the hopper becomes filled or partly filled with grain it oscillates on its center pivots, *b*, its movements being controlled by a spiral or other spring, D, by which the weight of the hopper and its contents is balanced. This spring D is attached to the angled side A′ of the hopper, and enters a guide-tube, D′, fixed to a cross-bar, D^2, carried by brackets D^3, fitted to the side cheeks, B. Within the tube D′ is fitted a piston, against which the end of the spring D bears, and the position of this piston is varied to regulate the action of the spring by means of a screw, *d*, and jam-nut *d′*. The hopper A is formed with a mouth-piece, A^2, to which a loose bag, E, is attached to lead the grain into the hopper, while leaving the hopper free to oscillate. When the grain or other material to be ground falls into the hopper A the hopper is tilted on its fulcrum or center pivots, *b*, against the power of the spring. The straight side A is thus raised slightly from the feed-roller C, thereby allowing the material to pass through between it and the roller C and fall onto the grinding-rollers or grinding-stones in proportion to the quantity fed into the hopper. The dotted lines on each side of the hopper indicate the extent of motion of the hopper, the front line representing the closed position when it is out of action and the rear line the limit to which the hopper can be opened when there is in it an excessive quantity of grain.

Instead of a spiral spring, D, a coach-spring or other form of spring may be used, either under tension or compression, to control the extent of oscillation of the hopper A; or its movement may be regulated by means of a lever fitted with a movable weight, or by means of a weight and cord passing over a pulley and connected to the hopper.

What we claim is—

1. The combination of the feed-roll of a device for feeding granular material with a balanced hopper pivoted over said roll, substantially as and for the purpose set forth.

2. The combination of a feed-roll with a movable hopper having its delivery end over said roll and devices, substantially as de-

scribed, for balancing said hopper against the weight of its contents.

3. The combination of a feed-roll and a pivoted hopper having one of its sides about vertical, and having its discharge end over said roll, with a counterbalancing device for supporting the hopper on its inclined side.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN HURT.
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Witnesses:
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JOHN SIME,
Both of 96 *Buchanan Street, Glasgow.*