

(No Model.)

2 Sheets—Sheet 1.

G. WESTINGHOUSE, Jr.

COCK GRINDING MACHINE.

No. 270,527.

Patented Jan. 9, 1883.

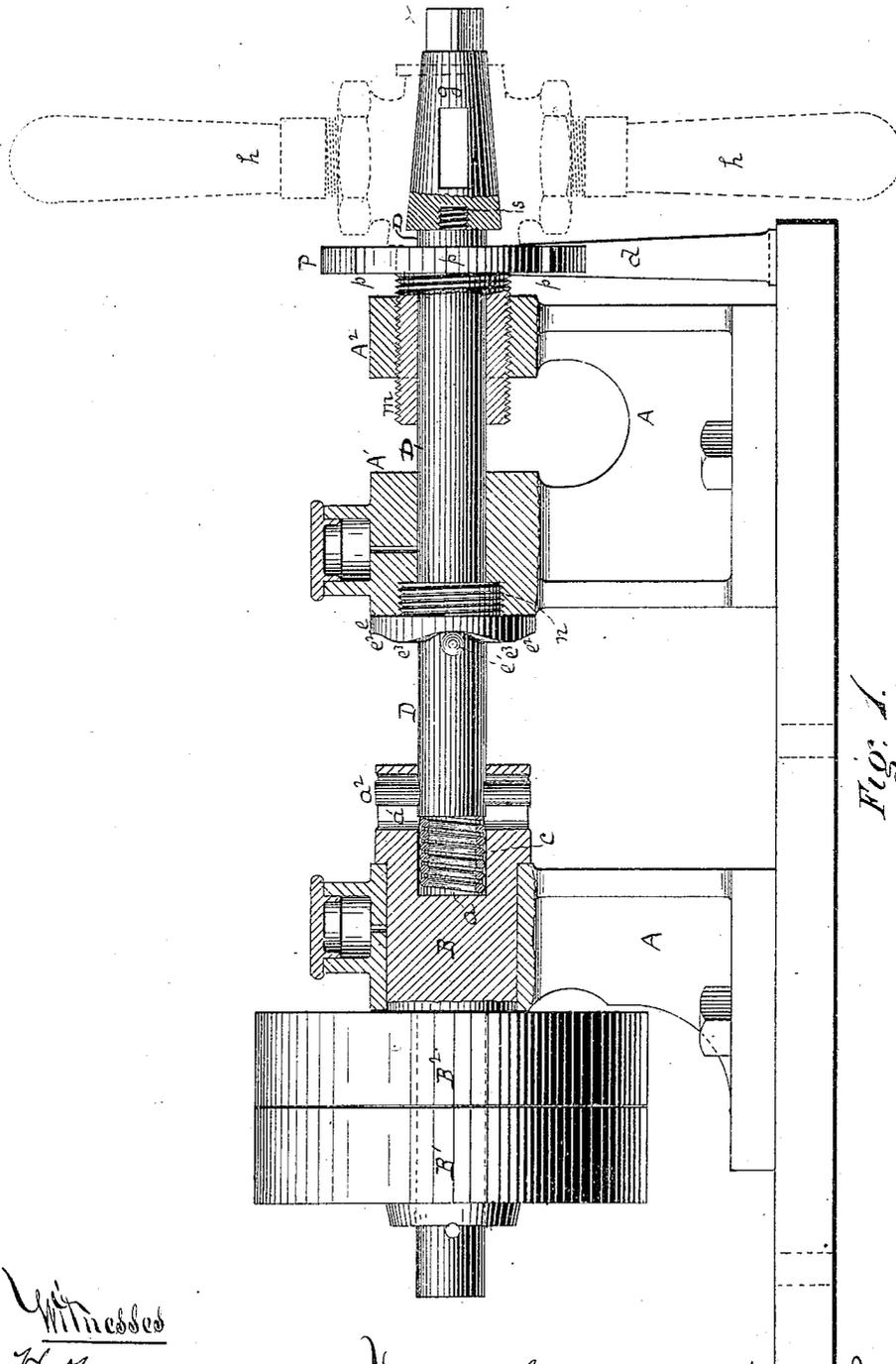


Fig. 1.

Witnesses
H. J. Mann
R. A. Whittlesy

Inventor George Westinghouse Jr.
By Attorney George H. Christy

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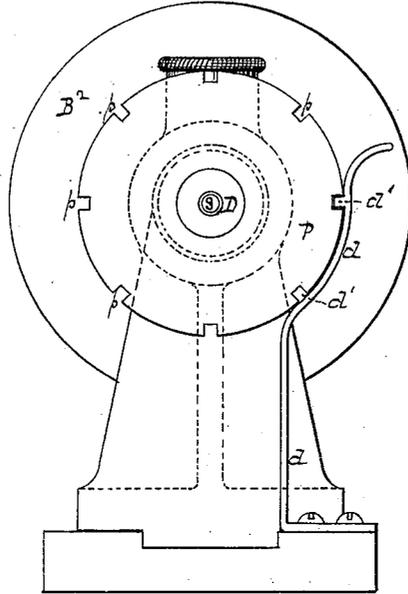


Fig. 2.

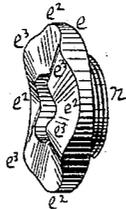


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

COCK-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,527, dated January 9, 1883.

Application filed September 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Cock-Grinding Machines; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1, Sheet 1, is a side elevation, partly in section, of my improved machine for cock-grinding. Fig. 2, Sheet 2, is a right-hand end elevation; and Fig. 3 is a detached view in perspective of the cam-faced disk I employ in imparting a reciprocating motion to the revolving shaft.

In the manufacture of that class of cocks in which a rotary key or plug having a greater or less taper is operated in the correspondingly-shaped seat of a hollow shell it is necessary, in order that the requisite tightness of joint be secured in the seats, that the plug be ground into or onto the seats of the shell. In order to avoid irregularities of grinding action, and otherwise to do good work, the plug or key, after receiving one or more turns or part turns in the shell, has to be knocked loose or lifted from its seats and a new grinding bite taken. Such work heretofore has usually been done by hand, and consequently is slow and tedious. My improved machine is designed and organized to give a combined rotary and reciprocating motion to the plug or key, so that, the shell being held in the proper position with reference thereto, the grinding operation, attended by the proper loosening operation at short intervals, may go on rapidly and continuously till the faces of the plug and the seats of the shell are properly conformed to each other.

In the drawings, A represents the frame of the machine, which may be of any suitable construction.

The rotating shaft B is provided with the usual fast and loose pulleys, B' B². In the forward end of the shaft B, I bore out a recess or socket, *a*, and transversely thereto, and a little back of the end, I make a slot, *a'*, the length of the slot from right to left

being a little in excess of the longest range of reciprocating motion desired to be given to the spindle D, the rear end of which is inserted in or opposite the socket *a* and secured therein by a pin, *a'*. Also, a spring, *c*, is inserted between the base end of the spindle D and the base of the socket, and such spring is to be made stiff enough to force the spindle D outward, when not forced backward, in the manner presently to be described. The bearing A' of the spindle has secured to it a cam-faced disk, *e*, through which the spindle D passes; and for convenience in fastening I prefer to make a threaded open stem, *n*, on the back of the disk, and this stem *n*, I screw into a tapped hole in the bearing. In the other bearing, A², I screw a hollow adjustable nut, *m*, and the forward or outer end of this nut has secured thereto or made integral therewith a face-plate, P, the periphery of which has notches *p*, so that by the use of a spanner (or by hand) the nut *m*, and with it the face-plate P, can be adjusted in the bearing A² longitudinally of the spindle D; and for the purpose of holding it in position when adjusted as against a rotary motion, I provide a spring-dog, *d*, with a tooth, *d'*, thereon to enter a notch of the face-plate.

On the end of the spindle D, I make a threaded pin, *s*, onto which to screw the plug or key *g*, the conical periphery of which is to be ground onto or into the seats of the shell, the exterior form of which, with handles *h* screwed into the side holes or ports, is shown in exterior outline in Fig. 1 by dotted lines. The cam-faces of the disk *e* have a pin, *e'*, playing on them, such pin passing through the spindle D, and in such position as to be caused to enter the lower or depressed portions of the grooves *e'*, forming a part of the cam-surface, under the action of the spring *c*; but as the spindle rotates, carrying the pin *e'* around with it, the ends of the pin, rising on or riding up the inclines of the cam-face, will move the spindle D to the left until the ends of the pin pass the apexes *e'* of the cam-face, and then, as the ends of the pin go down the counter inclines, the spindle D will be moved to the right by the spring *c*, and as the key or plug *g* is screwed onto the end of the spindle it will have the same motions. As the spindle D is rotated from the band-wheel B' through the interme-

diate connections, the plug or key *g*, screwed thereon, will receive the rotary motion desired for grinding purposes, and at the same time the action of the pin *e'* and disk *e* is such that it will be drawn back and loosened at short intervals to take a new grinding bite on or engagement with the seats in the case or shell. The latter is held onto or presented to the plug by a workman, who holds it by the handles *h*. Ordinarily the face-plate *P* is to be so adjusted that at each backwardly-reciprocating motion of the plug, and before it reaches its extreme backward motion, the end of the shell will be brought against the face-plate, and thereby be tapped or knocked loose from the grinding engagement of the plug therewith. In this function the face-plate *P* acts simply as a knocker. Thus I secure by mechanical action exactly the rotary grinding and reciprocating loosening motion employed in hand work, but both going on simultaneously, continuously, and rapidly, and neither interfering with the other.

As shown in the drawings, the disk *e* has its radial grooves and corrugations so made as to give to the plug *g* four reciprocating movements back and forth with each revolution. This number may be varied at pleasure by properly varying the number and spacing of the corrugations or projections. Thus, if but one projection *e* be employed, and only one end of the pin *e'* projects beyond the face of the spindle, then the plug *g* will be withdrawn and its shell knocked loose only once at each revolution. Other modifications may be made, such as have the substantial construction and operation unaltered, and, while I make claim to some of the details of construction, I do not intend to limit myself rigidly thereto in so far

as relates to the use of a rotary and reciprocating spindle in a cock-grinding machine. Among other things, the form or construction of the face-plate or knocker *P* may be varied at pleasure without losing its characteristic feature or function of a knocker in the construction described.

I claim herein as my invention—

1. The spindle *D*, having means for the attachment thereto of a plug or key, in combination with means for imparting to it a rotary and reciprocating motion, and with a knocker, *P*, through which it works, substantially as described.

2. A knocker, *P*, adjustably mounted in or on the spindle-bearing, in combination with the spindle and its threaded pin *s*, and a spring-dog to fasten the knocker, substantially as set forth.

3. A rotary spindle, *D*, having means for attachment of a plug, in combination with cam-faced disk *e*, pin *e'*, and spring *c*, substantially as set forth.

4. The slotted and recessed shaft *B*, in combination with spring *c*, pin *a'*, spindle *D*, having means for attachment of a plug, disk *e*, and pin *e'*, substantially as set forth.

5. A cock-grinding machine having in combination a rotary shaft and a rotary and reciprocating spindle united by an extensible connection, a cam-disk, *e*, and pin *e'*, an adjustable knocker, *P*, and threaded pin *s*, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEORGE WESTINGHOUSE, JR.

Witnesses:

R. H. WHITTLESEY,
GEORGE H. CHRISTY.