

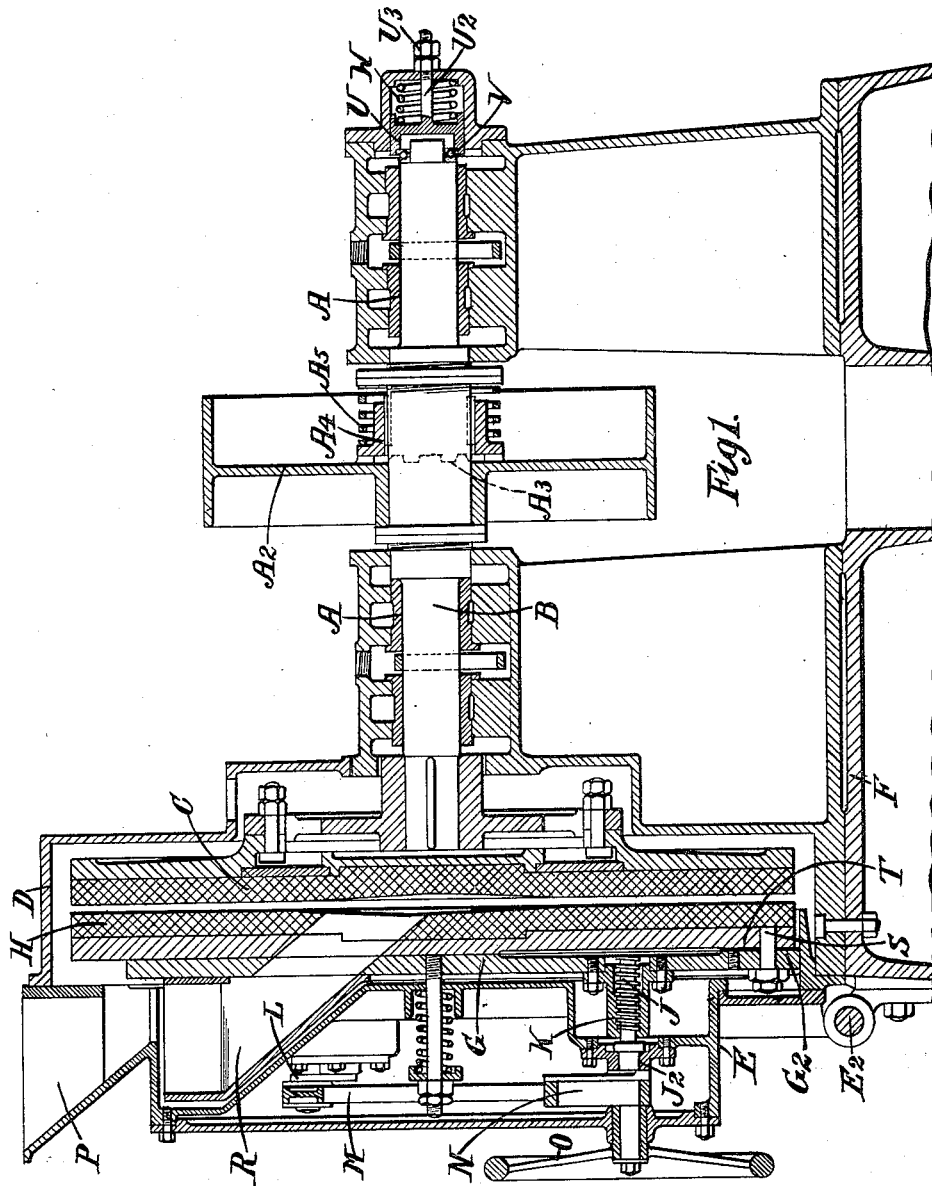
A. CRAIG.
GRAIN MILL.

APPLICATION FILED OCT. 15, 1909.

Patented July 30, 1912.

2 SHEETS—SHEET 1.

1,033,878.



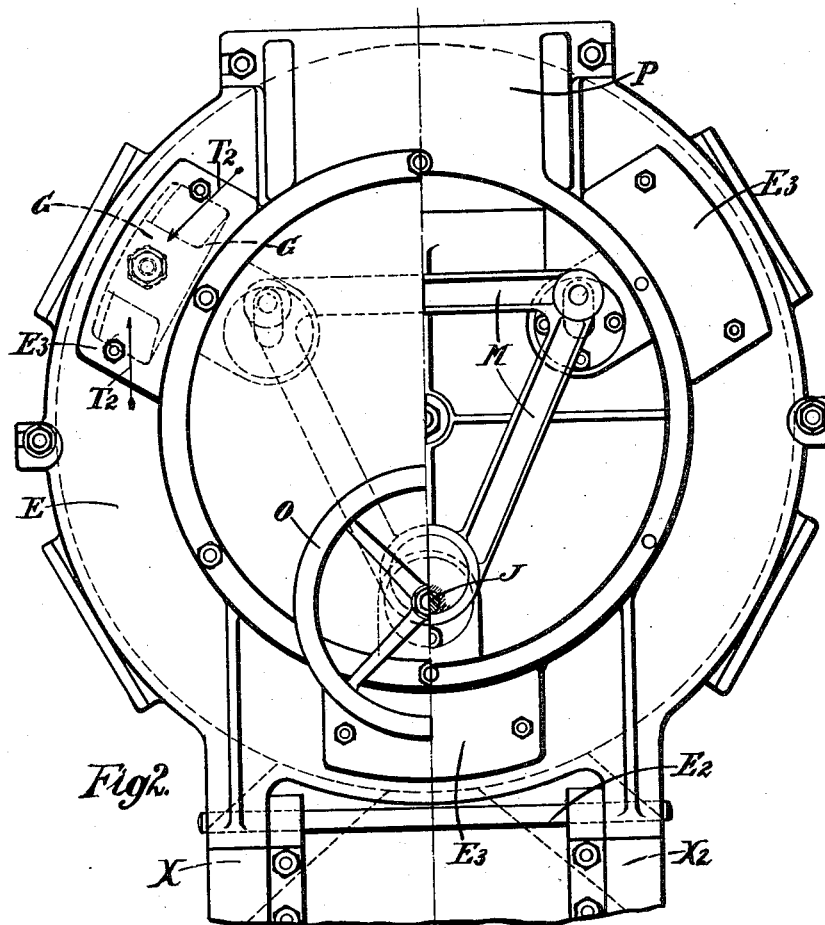
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UNITED STATES PATENT OFFICE.

ALEXANDER CRAIG, OF COVENTRY, ENGLAND.

GRAIN-MILL.

1,033,878.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed October 15, 1909. Serial No. 522,747.

To all whom it may concern:

Be it known that I, ALEXANDER CRAIG, a subject of the King of Great Britain, residing at Coventry, in the county of Warwick, England, have invented certain Improvements in Grain-Mills, of which the following is a specification.

This invention relates to grain mills and the like and has for its object to provide an improved construction in which rapid adjustment of the grinding disks can be easily effected, while access to these important members is easy. In addition a number of other important features are incorporated in the mills constructed in accordance with this invention.

The stationary disk is mounted upon an adjusting plate which can be screwed toward or away from the rotating disk at any suitable number of points, all these screws being similarly operated from a single point by means of an endless connecting rod. By this construction it is possible to arrange the adjustment of the screws close to the outlet from the mill. Thus the operator can test the material issuing from the mill, and at the same time adjust the disk so as to obtain the result required. The stationary disk and adjusting plate is carried by a door hinged horizontally along its lower edge. It can therefore be lowered enabling the grinding disks to be got at without imposing any strain upon the parts of the mill, as it will be seen that the door lies upon the floor or ground when opened.

The accompanying drawings show a construction of grain mill according to this invention.

In these, Figure 1 is a longitudinal vertical section, while Fig. 2 is an end view on a different scale.

Like letters indicate like parts in both figures.

In this construction, in suitable bearings A may be arranged a driving shaft B, which carries the usual face grinding disk C. This is inclosed in a suitable cover D with which is used a door E. This door is hinged along its lower edge as at E² to a base plate F on which are mounted the bearings A. This door E carries an adjustable plate G roughly co-axial with the driving shaft, and on the face of the plate G is the stationary grinding disk H usually employed, which faces the rotating disk C.

Engaging screwed caps K on the adjustable plate G are a number of screwed spindles J arranged in bearings J² on the door, with thrust collars on both sides of the bearings. Thus when the spindles J are rotated they force the adjustable plate G axially toward or away from the rotating disk C. Each spindle J is provided with a crank L and these cranks are connected together by an endless connecting rod M, or in some cases links. If there are three spindles arranged equidistantly around the axis as shown the connecting rod is triangular. There may be any number of spindles used, the shape of the connecting rod varying accordingly. This connecting rod M is actuated by a crank or eccentric N which may be mounted upon one of the spindles in place of the crank. The crank or eccentric N is provided with a hand wheel O or other operating device by which it may be rotated and it will be seen that the adjustment of the hand wheel O affects all the spindles J simultaneously and equally, forcing up the adjustable plate G and stationary disk H in the manner required.

The door E is provided with a suitable hopper P for feeding in the grain, and a second hopper R is arranged inside the door, fixed to the adjustable plate G. This second hopper is beneath the first, but as it is adjustable with the adjustable plate it is necessary that this second hopper be wider than the first as shown so as to always register with it.

It is common practice in mills of this type to adjust the grinding disk H locally to compensate for local wear. To enable this to be done in the present instance the disk H is adjustable in relation to the plate G. This may be effected in the manner to be described or in any other suitable manner. In the construction illustrated the cover plates E³ are removable, exposing lugs G² formed on the adjustable plate G. The bolts S by which the grinding disk H is attached to the adjustable plate G are slacked off and the packing T is inserted in the direction of the arrows T².

If desired, in some part of the drive what is known as a "lightning tapper" may be used to permit of overrunning and to give warning in case a foreign object should lodge in the mill. For instance the driving pulley A² may be free on the driving shaft

and may be formed with beveled clutch teeth A³ engaging a sleeve A⁴ free to slide on a key-way on the driving shaft B. The jaws of the two parts are held together by a spring A⁵, but it will be seen that should the driving shaft jam the pulley A² will overrun owing to the clutch teeth being angular, causing considerable noise, and preventing damage. To prevent further damage to the disks should a foreign object enter the mill a spring thrust may be arranged in conjunction with the driving shaft in the well-known manner. This may take the form of a cup U between the edge of which and a ring on the shaft a thrust bearing V is arranged. This cup is backed up by a spring W which is, as is usual, only adapted to yield if a foreign body of large size should pass between the disks. The cup is provided with a screwed spindle U² and nuts U³ which prevent the thrust of the spring being imparted to the shaft during normal running.

It will be seen that an important feature is that the adjustment for the adjustable disk is close to the outlet from the mill. This may be either at X or X². Thus a sample of the work done can be taken from time to time and the disk H adjusted ac-

ording to requirements, without a change of position on the part of the operator.

What I claim as my invention, and desire to secure by Letters Patent, is:—

In combination, a casing, a grain inlet thereto, a driving shaft, a rotating grinding disk thereon, a grain outlet, a door hinged along its lower edge to said casing, a plate carried by the door and adjustable toward and from the rotating disk, a grinding disk carried by and adjustable toward and from the said adjustable plate, a plurality of adjusting screwed spindles carried in bearings on the door and arranged to effect the adjustment of the adjustable plate, a crank on each spindle, a connection between the various cranks, means carried by the door for operating said connection to effect the simultaneous turning of said spindles, and means for adjusting the adjustable disk toward and from the adjustable plate.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEX. CRAIG.

Witnesses:

ERICH WALFORD,

JOHN I. FAZAKARBY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."