

April 10, 1934.

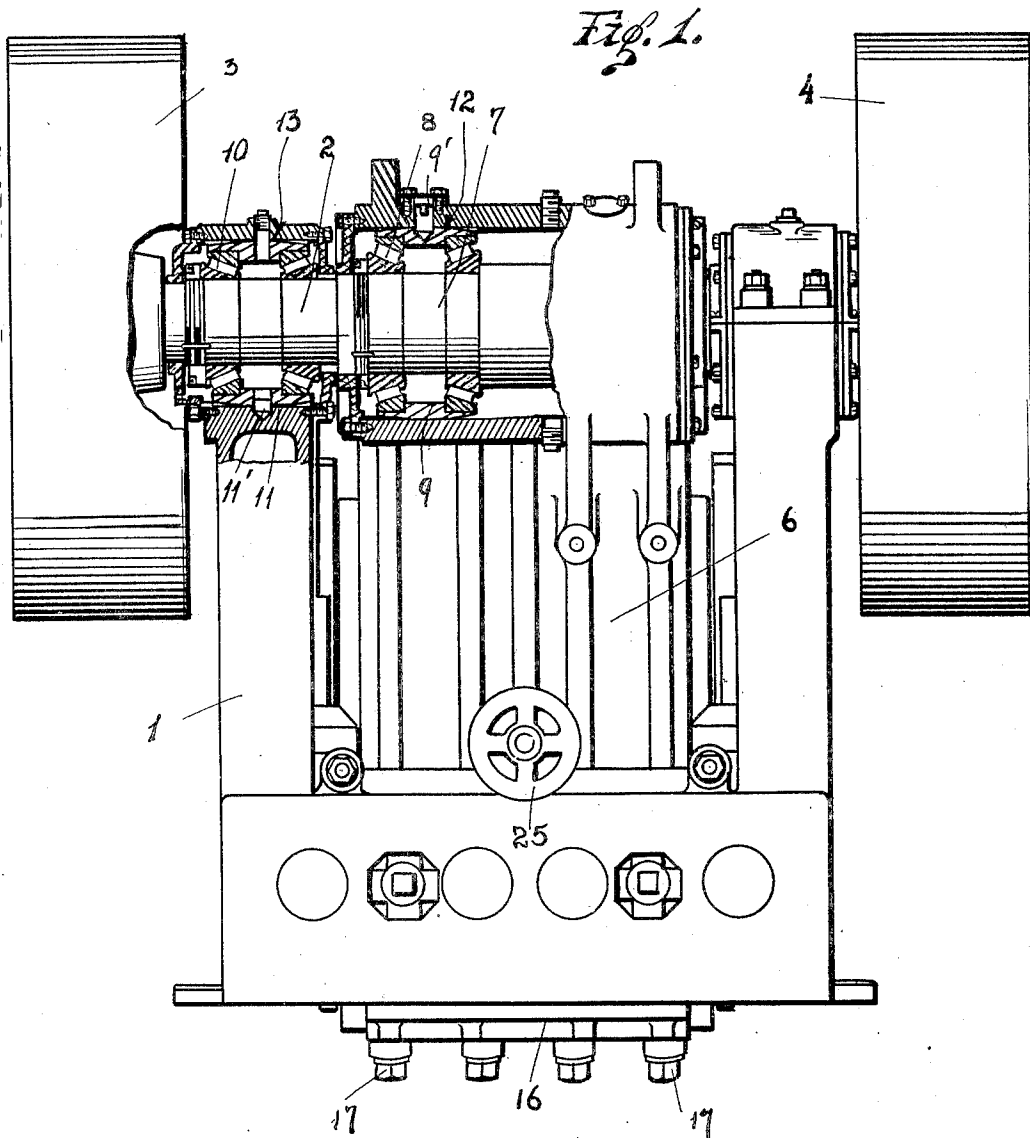
P. R. FRANCIS

1,954,288

JAW CRUSHER

Filed Nov. 28, 1930

2 Sheets-Sheet 1



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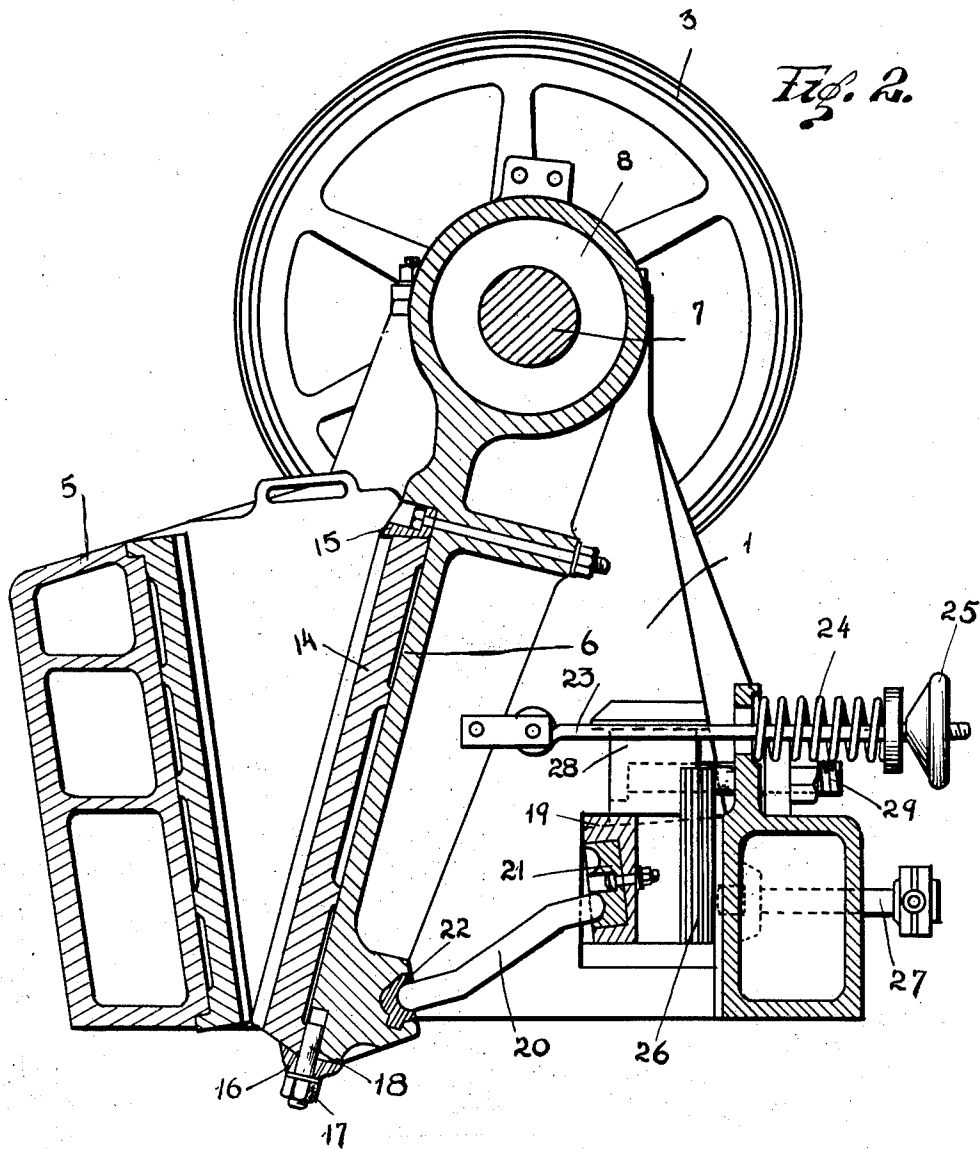
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1,954,288

JAW CRUSHER

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Application November 28, 1930, Serial No. 498,639

2 Claims. (Cl. 83—53)

This invention relates to a rock crusher of the jaw type, and the prime object of my invention is to provide a novel bearing mounting for the revolving shaft of the crusher, which mounting permits of a limited deflection in the shaft due to high speed or a heavy load.

Another object is to provide a novel means of securing the removable face plate on the moving jaw whereby the face plate or the securing means can be readily and easily replaced.

Still another object is to provide a novel means of adjusting the movable jaw relative to the stationary jaw.

Other objects, advantages, and features of invention, may appear from the accompanying drawings, the subjoined detailed description, and the appended claims.

In the drawings

Figure 1 is a side elevation of my crusher with parts broken away to show interior construction.

Figure 2 is a longitudinal, sectional view of the crusher.

Referring more particularly to the drawings, the numeral 1 indicates the frame of my crusher, and a shaft 2 is journaled in the frame adjacent the top thereof. A pulley or fly-wheel 3—4 is secured to either end of the shaft 2 and the shaft is rotated by means of either of said pulleys.

A stationary jaw 5 is rigidly secured to the frame 1 and this jaw is inclined downwardly as shown in Figure 2, so that the space between the movable and stationary jaw is restricted at the lower end of the crusher. A movable jaw 6 is mounted on the shaft 2, and this jaw is given an oscillating movement by eccentrics 7 on the shaft 2. Anti-friction bearings 8 surround the eccentrics 7 and the bearings are mounted in a cage 9 in the movable jaw. Thus the movable jaw is provided with an effective and simple bearing upon which it operates. The shaft 2 is mounted in anti-friction bearings 10 at either end thereof, and the bearings 10 are each mounted in a cage 11 which rests in the frame 1.

To provide for any possible deflection in the shaft 2, the outer surfaces of the cages 9—11 are curved or rounded, as shown at 12—13 respectively. The movable jaw and the frame 1 are preferably bored with a straight surface upon which the curved surfaces of the cages 9—11 are adapted to bear, which allows the shaft to deflect without throwing an undue strain upon any of the rotating or operating parts. The deflection of the shaft 2 is very slight, consequently, the curved surfaces 13—12 need not necessarily be a continuous smooth curve, but if desired, the outer

parts of the cages 9—11 can be slightly curved or rounded to permit said cages and the bearings therein to move slightly. The anti-friction bearings 8—10 can be of any desired type, either ball or roller. Dowels 9'—11' extend through the cages 9—11 respectively to hold said cages against rotation.

The movable jaw 6 is provided with a removable crusher plate 14 on the face thereof, said plate being held at the top by a removable lock 15 and at the bottom by a removable clamping plate 16. The difficulty in crushers of this type heretofore has been that the mounting means for the removable plate at the bottom of the jaw has worn away and required an elaborate welding job to properly build up the jaw. I provide a removable clamping plate which can be thrown away when it becomes badly worn. This necessitates only a very slight expense. The clamping plate is held in position by a plurality of nuts 17, which nuts screw on to studs 18 which extend from the bottom of the jaw and through the clamping plate.

An adjustable block 19 is mounted in the frame 1, and a link 20 extends between the block and the lower end of the jaw 6. The purpose of this link is to guide the jaw in its movement relative to the stationary jaw 5. A plate 21 is removably mounted in the block 19 and the link 20 bears against this plate. Whenever the plate becomes badly worn, it can be replaced at a very slight expense.

A removable plug 22 is mounted in the jaw 6, and one end of the link also bears against this plug. In order to properly hold the jaw 6 in its operative position, I provide a bar 23 which is connected to the jaw 6 and extends through the frame 1. A spring 24 surrounds the bar 23 and tends to urge the jaw 6 against the link 20. The tension of the spring 24 is regulated by a hand-wheel 25.

The block 19 must be accurately spaced so that the distance between the two jaws 5—6 can be regulated. For the purpose of spacing the block, I provide shim-plates 26 which are placed between the block and the frame 1. A long jack screw 27 bears against the shims and adjusts the block 19 as desired.

The block 19 is locked by means of a wedge 28 which fits against the top of the block. The upper surface of the block 19 is tapered to fit the wedge and when it is desired to adjust the block, the wedge 28 is loosened and the jack screw 27 is moved inwardly or outwardly as desired to move the said block inwardly and outwardly. After the block is adjusted, shims 26

are either added or taken out back of the block after said block is drawn tightly against the shims by the wedge 28. The wedge is held tightly clamped against the block by a bolt 29.

5 Having described my invention, I claim:

1. A jaw crusher comprising a frame, a pair of jaws, one of said jaws being movable relative to the other to crush materials therebetween, a driving shaft journaled on said frame, eccentrics on the shaft, bearings between the eccentrics and the movable jaw, an anti-friction bearing in the frame on which the shaft is journaled, a cage in which the bearing is mounted, said cage having a rocking seat in the frame whereby said cage is
15 movable to permit of deflection in the shaft.

2. A jaw crusher comprising a frame, a pair of jaws, one of said jaws being movable relative to the other to crush materials therebetween, a driving shaft journaled on said frame, eccentrics on the shaft, anti-friction bearings on the eccentrics, a cage in which said bearings are mounted, said cage having a movable seat in the movable jaw whereby deflection of the shaft is permitted, anti-friction bearings in the frame on which the shaft is journaled, a cage in which said last named bearing is mounted, said last named cage having a movable seat in the frame whereby movement of the cage is permitted to enable the shaft to deflect.

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