No. 826,140. PATENTED JULY 17, 1906.

W. G. BRYANT.

CRUSHING ROLLS.

APPLICATION FILED OCT. 27, 1905.

2 SHEETS—SHEET 1.

Fig. 4.

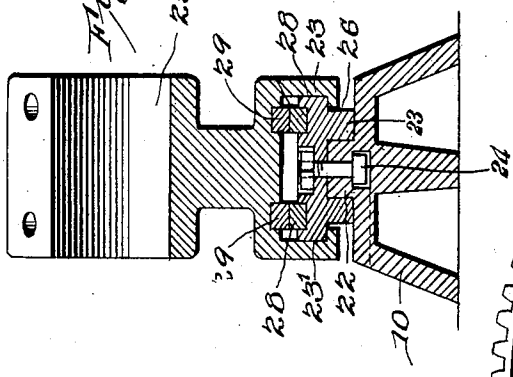


Fig. 3.

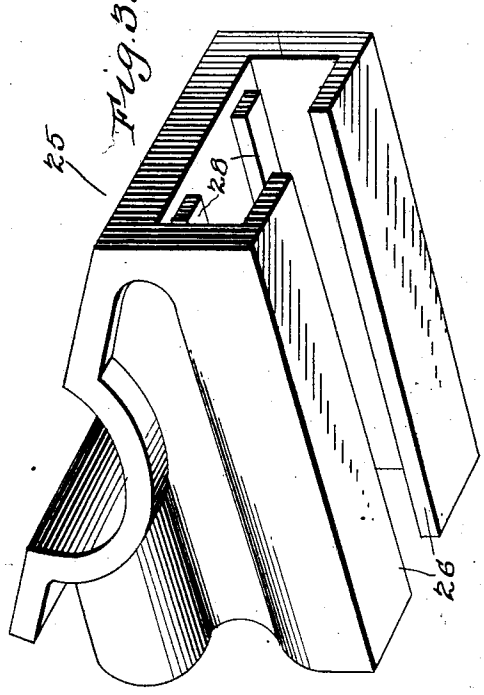
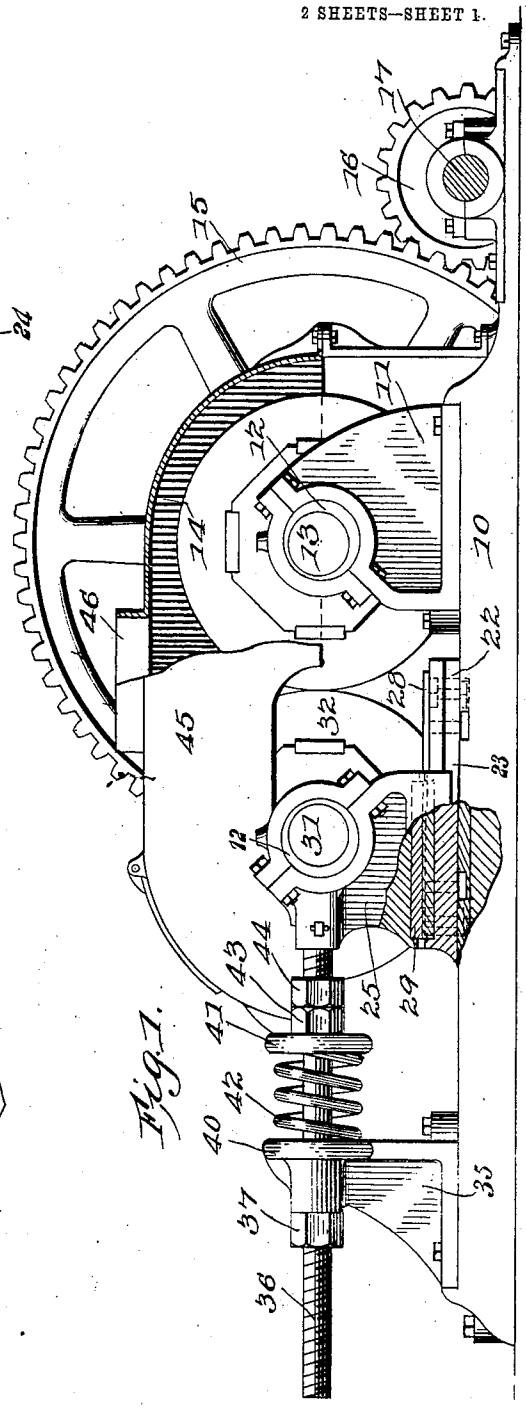


Fig. 1.



Witnesses

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Jno. E. Parker

Walter G. Bryant, Inventor.

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2 SHEETS—SHEET 2.

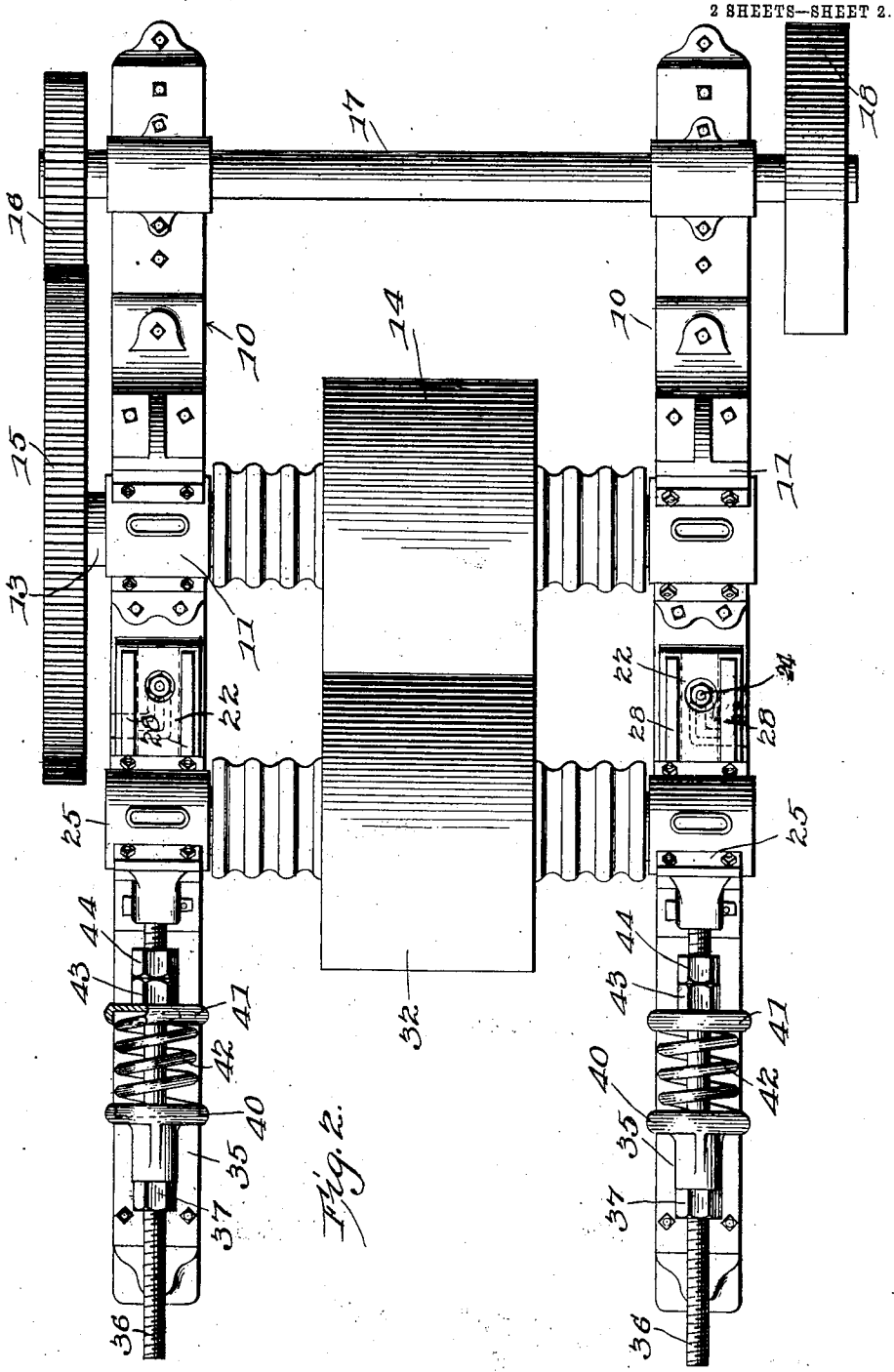

Fig. 2.

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UNITED STATES PATENT OFFICE.

WALTER GUY BRYANT, OF CARTERVILLE, MISSOURI.

CRUSHING-ROLLS.

No. 826,140. Specification of Letters Patent. Patented July 17, 1906.

Application filed October 27, 1905. Serial No. 284,753.

To all whom it may concern:

Be it known that I, WALTER GUY BRYANT, a citizen of the United States, residing at Carterville, in the county of Jasper and State of Missouri, have invented new and useful Crushing-Rolls, of which the following is a specification.

This invention relates to crushing-rolls, and has for its principal object to provide a pair of rolls having mountings of very simple and durable character, all of the parts being readily accessible for adjustment or repair.

A further object of the invention is to provide a mounting or support for the movable roll in which both the lower sills or bed-rails and the sliding roll-carrying boxes are provided with wear-plates which may be renewed from time to time as required, there being no wear whatever on the bed-plate or boxes.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a crushing-roll constructed in accordance with the invention. Fig. 2 is a plan view of the same. Fig. 3 is a detail perspective view of a portion of one of the sills or rails on the bed-plate, showing the detachable wear-strips carried thereby. Fig. 4 is a detail transverse section through one of the bed-rails and boxes.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The frame of the mill includes a pair of bed rails or sills 10, that are properly supported in spaced relation, and each is provided with a rigid pillow-box 11, carrying a fixed bushing 12 for the reception of the shaft 13 of one of the rolls 14. The shaft is mounted eccentrically with respect to the bushing 12, the latter being so arranged that the thickest portion of the bushing, or that portion exposed to the greatest wear, shall be opposite the line of initial thrust from material passing between the rolls. On this shaft is secured a gear 15, that is driven by a pinion 16, mounted on a driving-shaft 17, the latter being provided with a suitable belt-pulley 18, to which power may be transmitted in the ordinary manner.

The sills or rails are each provided with a vertically-projecting rib 22, which fits into a suitable groove formed in the lower face of a detachable guide-bar 23, that is held in place by bolts 24, the heads of the bolts being disposed in recesses, the sills and the upper ends thereof receiving nuts that fit in suitable recesses formed in the guide-bar, as shown in Fig. 4.

The guide-bar is provided with laterally-extended flanges 23′, that fit into recesses formed in slidable pillow-boxes 25, and the lower edges of said pillow-boxes have inturned flanges 26, that fit in the spaces between the flanges 23 and the upper surface of the sills proper, so that said pillow-boxes are firmly held from either lateral or vertical play, but are free to slide toward and from the stationary pillow-boxes 11.

The upper face of the guide 23 is provided with two or more parallel recesses, in which are placed removable wear-strips 28, and in the lower face of each slidable pillow-box are arranged recesses for the reception of the wear-strips 29, all of the wear-strips being reversible and loosely held within their recesses in order to permit ready renewal in case of wear. These strips are held from independent longitudinal play by the end walls of the recesses in which they are seated, and auxiliary fastening devices are not necessary.

The pillow-boxes 25 are provided with bushings 12 for the reception of the shaft 31 of a crushing-roll 32, which coacts with the roll 14 in the reduction of the material.

Near the end of each sill is secured a bracket 35, that is rigidly bolted in place and is provided with an enlarged opening for the free passage of a threaded bolt 36, the inner end of which is firmly locked to the slidable pillow-box 25. On the outer portion of the bolt is arranged a nut 37, which by contact with the outer face of the bracket 35 limits the extent of inward movement of the roll 32, and by adjusting this nut the rolls may be maintained in spaced relation, if desired.

The upper portion of the bracket 35 is provided with a slightly-recessed head 40, which in connection with a recessed disk 41, loosely mounted on the bolt 36, forms a support for a helical compression-spring 42, and the stress of the spring may be adjusted by a nut

43, which is locked in adjusted position by a nut 44. The springs tend to force the movable roll 32 against the relatively fixed roll 14, and the force exerted by the springs may be adjusted in accordance with the character of the material being operated upon.

The rolls are inclosed in a suitable housing 45, having a feed-opening 46, which may communicate with a suitable hopper, and the housing is formed in sections, so that it may be readily removed when necessary.

A pair of rolls constructed in accordance with this invention may be quickly adjusted in accordance with the character of the material to be operated upon, and all portions of the device are readily accessible for renewal or repair. By providing the wear-strips between the sills or rails of the frame and the movable pillow-boxes the frame and pillow-boxes may be used for an indefinite period without any wear whatever, it being merely necessary to renew the strips from time to time.

Having thus described the invention, what is claimed is—

1. In a crushing-mill, a frame including a pair of longitudinal sills, rigid pillow-box bases carried thereby, a roll journaled in said pillow-box bases, a flanged guide-bar carried by each sill and having a recessed upper face, wear-strips seated in the recesses, slidable pillow-box bases mounted on said guide-bars and having inturned flange portions embracing the same, said slidable pillow-box bases being also recessed, wear-strips arranged in the recesses of the slidable pillow-box bases and bearing against the corresponding strips of the guide-bars, a roller journaled in the slidable pillow-box bases, and springs engaging said slidable pillow-box bases and tending to force the rolls into engagement.

2. In a crushing-mill, a frame including a pair of parallel sill members, pillow-box bases rigidly secured thereto, a roll journaled in said pillow-box bases, flanged guide-bars carried by the sills and provided with recesses in their upper faces, reversible wear-strips disposed in said recesses, slidable pillow-box bases mounted on the guide-bars and having recesses in their lower faces, reversible wear-strips seated in the recesses of the slidable pillow-box bases and bearing against the corresponding wear-strips of the guide-bars, a second roller journaled in the slidable pillow-box bases, and springs acting on said slidable pillow-box bases and tending to force the rolls into engagement.

3. In a crushing-mill, a frame including a pair of longitudinal sills, each of which is provided with a vertically-projecting rib, guide-bars recessed for the reception of said ribs and provided with laterally-extended flanges, means for securing the guide-bars to the sills, slidable pillow-box bases having inturned flange portions embracing the flanges of the guide-bars, a roll journaled in said slidable pillow-box bases, and a relatively stationary roll having bearings in a fixed portion of the frame.

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

WALTER GUY BRYANT.

Witnesses:
CARL C. CASS,
F. B. LOOMIS.