G. E. KRIDER.

CRUSHER.

APPLICATION FILED MAY 17, 1920.

1,436,347.

Patented Nov. 21, 1922.

FIG. 1.

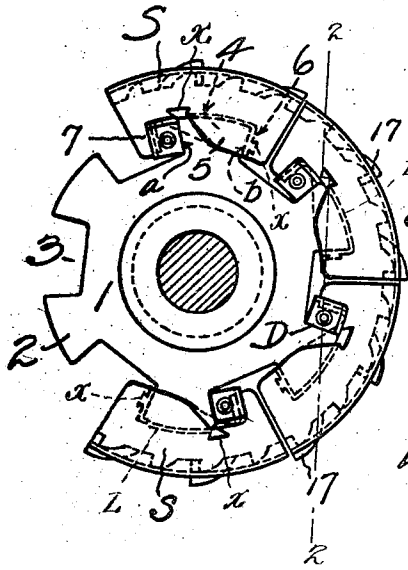
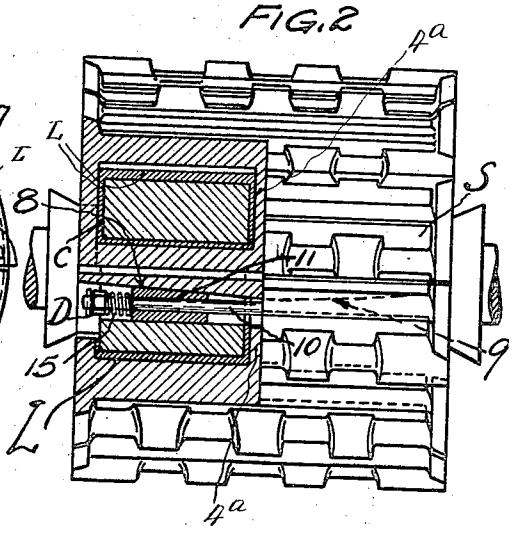


FIG. 2



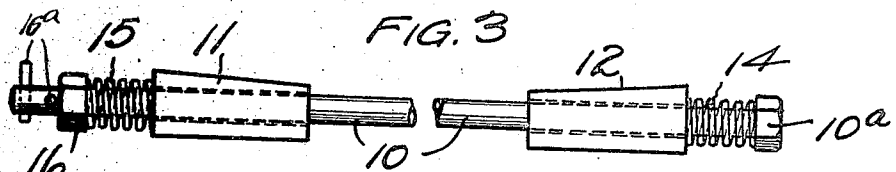
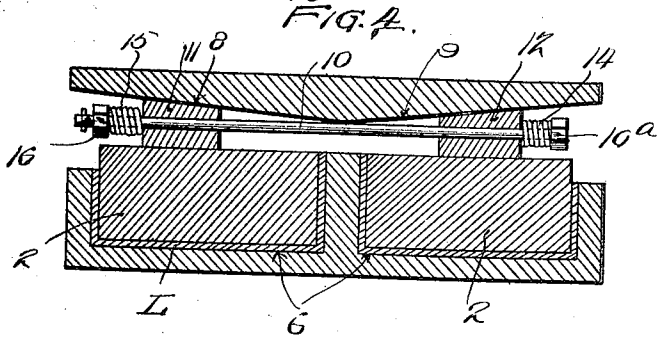


FIG. 3

FIG. 4.



Inventor

GEO. E. KRIDER

By N. C. Lee

Attorney

Patented Nov. 21, 1922. 1,436,347

UNITED STATES PATENT OFFICE.

GEORGE E. KRIDER, OF HOLLIDAYSBURG, PENNSYLVANIA, ASSIGNOR TO McLANAHAN STONE MACHINE CO., OF HOLLIDAYSBURG, PENNSYLVANIA.

CRUSHER.

Application filed May 17, 1920. Serial No. 382,037.

To all whom it may concern:

Be it known that I, GEORGE E. KRIDER, citizen of the United States, residing at Hollidaysburg, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Crushers, of which the following is a specification.

This invention relates to an improvement in crushers of the single roll type and has primarily in view novel means of securing the crushing segments to the roll in such a manner as to facilitate replacements.

Another object of this invention is to provide means for keeping the segment holding means tight at all times thereby preventing in a simple and practical way any lost motion between the segment and the roll spider.

With the above and other objects in view, which will be more readily apparent as the nature of the invention is better understood the same consists in the novel construction, combination and arrangement of parts as will be hereinafter fully pointed out illustrated and claimed.

It will be readily apparent to those skilled in the art to which this invention belongs that the same is susceptible of various changes and modifications without departing from the spirit or scope of the invention, but a preferred and practical embodiment of the invention is shown in which:—

Figure 1 is an end view of a single roll crusher spider having a number of segments attached thereto, by the present improved attaching means.

Figure 2 is a sectional view taken on the line 2—2 of the crusher roll and spider shown in Figure 1.

Figure 3 is a detail view of the crusher section locking unit.

Figure 4 is a detail horizontal sectional view of one of the shoes, showing the manner in which the same engages with a rib of the crusher roll.

Similar reference numerals refer to similar parts throughout the several figures of the drawings.

One of the novel and distinctive features of the present invention is the provision of a crusher roll consisting of a plurality of segmental shoes which are effectively locked in position on a spider or bed roll in such a manner that they may be readily assembled to provide the crushing surface, and at the same time easily removed when desired for replacement or repairs. Accordingly, as will be observed from the drawings it is proposed to utilize a bed roll or spider 1 having a plurality of transversely divided longitudinally disposed, and equally spaced holding ribs 2 preferably of the dove tail form shown in Figure 1. This arrangement of the ribs 2 provides intervening channels 3 which serve to accommodate the depending side portions of the segmental crusher shoes designated generally as S.

As will be observed from the drawings the segmental shoes S are in effect saddle elements, since they are provided with an interior socket portion 4 which is adapted to fit over and house the ribs 2 to thereby completely conceal the same. That is to say, the segmental shoes are provided with a relatively large socket portion opening at the inner side thereof, said socket being divided by the central interior web 4^a and closed at its outer ends by the end walls 5, while the sides are formed by the rib abutting side wall 6 and the opposite wedging wall 7, the latter cooperating with a novel locking device designated generally as D and shown in detail in Figure 3 of the drawings. The side wall 6 and floor of each section of the socket 4 are provided with the key slots x which receive a metal lining L which is flowed against the bottom and side wall of the socket and fills the key slots, thereby to hold the lining in place. This lining is usually made of type metal and serves as a filler to insure a tight fit of the segments on the divided ribs of the roll. One of the distinctive features of the socket 4 is the wedge wall 7 which includes the oppositely inclining faces 8 and 9 that converge toward the center of the shoe or block as may be observed from Figure 2. Obviously the general disposition of the walls 6 and 7 corresponds to the inclination of the sides of the dove tailed ribs 2, and by reason of the disposition of the wedging faces 8 and 9 on the wall 7 it will be apparent that when suitable wedging means is placed between the side a of one of the ribs 2 and the said faces 8 and 9, the shoe will be securely held to the rib due to the face 6 being held tightly against the opposite side b of the rib.

Referring to the locking device D it is to be observed that the same may include

a rod or bolt 10 for supporting the relatively shiftable wedge keys 11 and 12 for respectively engaging the faces 8 and 9 of the wedge wall of the shoe. The said wedge keys 11 and 12 are preferably yieldingly mounted on the bolt 10 by the provision of the springs 14 and 15, the former being confined between the head 10[a] of the bolt and the wedge key 12 and the latter being confined between the wedge key 11 and the adjustable nut 16 of the opposite end of the bolt. Due to the provision of the nut 16 which may be adjusted by placing the pin 16[a] in different holes formed radially in the bolt the same may be shifted longitudinally to vary the compression of the springs 14 and 15 to thereby cause the wedge keys 11 and 12 to engage with the faces 8 and 9 with more or less wedging force, as required.

From the foregoing it will be apparent that the present invention aims to provide a bed roll with a plurality of dove tailed ribs adapted to cooperate with a socket in a segmental crushing shoe in such a manner that the said shoes may be readily fitted to the ribs and held against endwise and sidewise displacement by the end walls 5 and wedge elements 11 and 12 of the locking device D. In other words it will be apparent that the shoes are provided with opposite end walls 5 which are cut-away to provide entrance clearance for the locking device which when in operative position shifts the segmental shoes transversely of the ribs in a more or less yielding manner due to the mounting of the keys 11 and 12 to thereby hold the wall 6 of the socket into engagement with one of the sides *b* of the rib and as the segment is prevented from endwise movement by the side walls 5 of the socket in engagement with the ends *c* of the rib, the same will be securely held in place.

The said segmental shoes S are preferably provided with the offset crusher teeth 17 on their exterior surface, and in order to enable the shoe to take an even seat on the rib the socket 4 is preferably lined with a thin sheet of type or similar metal designated as L.

Without further description it is thought the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:—

1. A crusher roll construction including a crusher spider having a plurality of longitudinal holding ribs, and shoes adapted to be fitted to said ribs, each shoe including a socket for fitting over a rib, and wedging means adapted to be interposed between one wall of the socket and one side of the rib.

2. A crusher roll construction including a crusher spider having a plurality of longitudinally disposed dove-tailed ribs, shoes adapted to be detachably fitted to each of said ribs, and each shoe comprising a body having a socket formed by opposite side walls and opposite end walls for engaging the ends of a rib, and wedging means adapted to be interposed between one of the side walls of the socket and one side of the rib to draw the side wall of the socket adjacent the end walls thereof into engagement with the opposite side of the rib.

3. A crusher roll construction including a crusher spider having a plurality of longitudinally disposed dove-tailed ribs, segmental crusher shoes detachably fitted to said ribs, and each shoe including a socket having opposite side walls, one of said side walls having oppositely inclined wedging surfaces, and end walls located at opposite ends of the socket and cut-away to provide access to said inclined wedging surfaces of the side wall, and a locking device for cooperating with the said wedging surfaces of said side wall of the socket and one side of the rib to hold the shoe in position.

4. A crusher roll construction including a roll spider having a plurality of longitudinally disposed dove-tailed ribs, segmental crusher shoes detachably fitted to said ribs and each shoe including a socket having a side wall provided with oppositely inclined wedging surfaces accessible from the side of the shoe, and a locking device including oppositely working wedge keys adapted to cooperate with said wedging surfaces of the shoe and one of the side walls of the rib to hold the shoe in position.

5. A crusher roll construction including a roll spider having a plurality of longitudinally disposed dove-tailed ribs, segmental shoes detachably fitted to said ribs and each shoe including reversely inclined wedging faces adapted to be positioned opposite one of the side walls of the rib to which the shoe is applied, and a locking device including yieldingly mounted wedging keys for cooperating with the reversely inclined wedging faces on the shoe and one side of said rib to securely hold the shoe in position.

6. A crusher roll construction including a roll spider having a plurality of longitudinally disposed dove-tailed ribs, segmental shoes detachably fitted to said ribs and each shoe including reversely inclined wedging faces adapted to be positioned opposite one of the side walls of the rib to which the shoe is applied, and a locking device for holding said segmental shoe to the rib consisting of a pair of wedge keys, a bolt for supporting said wedge keys, abutments on said bolt, springs interposed between said abutments and the keys and one of said abutments being adjustable to tension the springs operating on the keys.

7. A crusher roll construction including a crusher spider having a holding rib, and a shoe adapted to be fitted to said rib, said shoe including a socket for receiving the rib, and means adapted to be interposed between one wall of the socket and one side of the rib to lock the shoe to the rib.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE E. KRIDER.

Witnesses:
ADAM LEAKE,
N. E. GEE.