T. A. EDISON.

CRUSHING ROLLS.

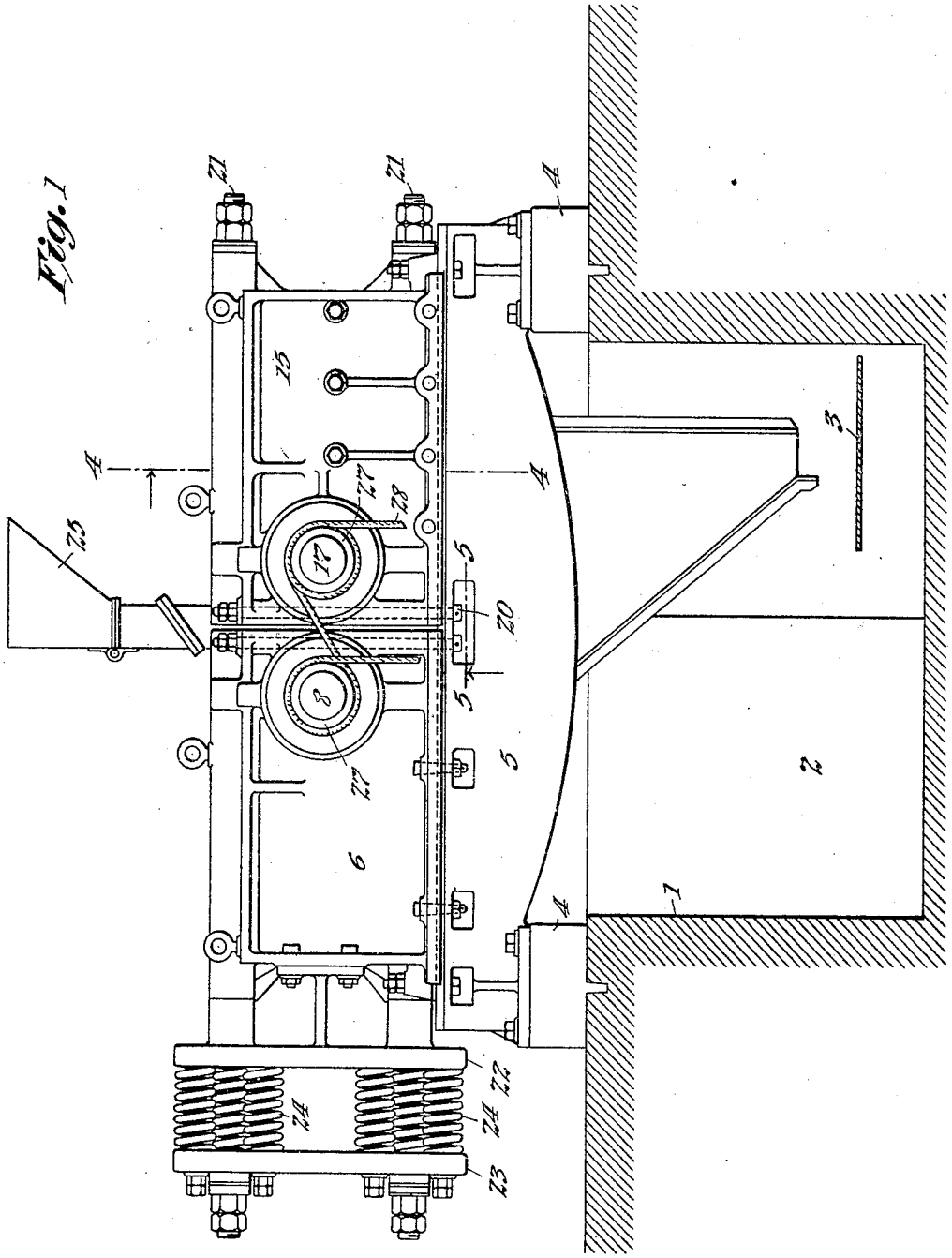
APPLICATION FILED SEPT. 18, 1906.

962,823.

Patented June 28, 1910.

4 SHEETS—SHEET 1.

Fig. 1



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Anna R. Kleber

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4 SHEETS—SHEET 2.

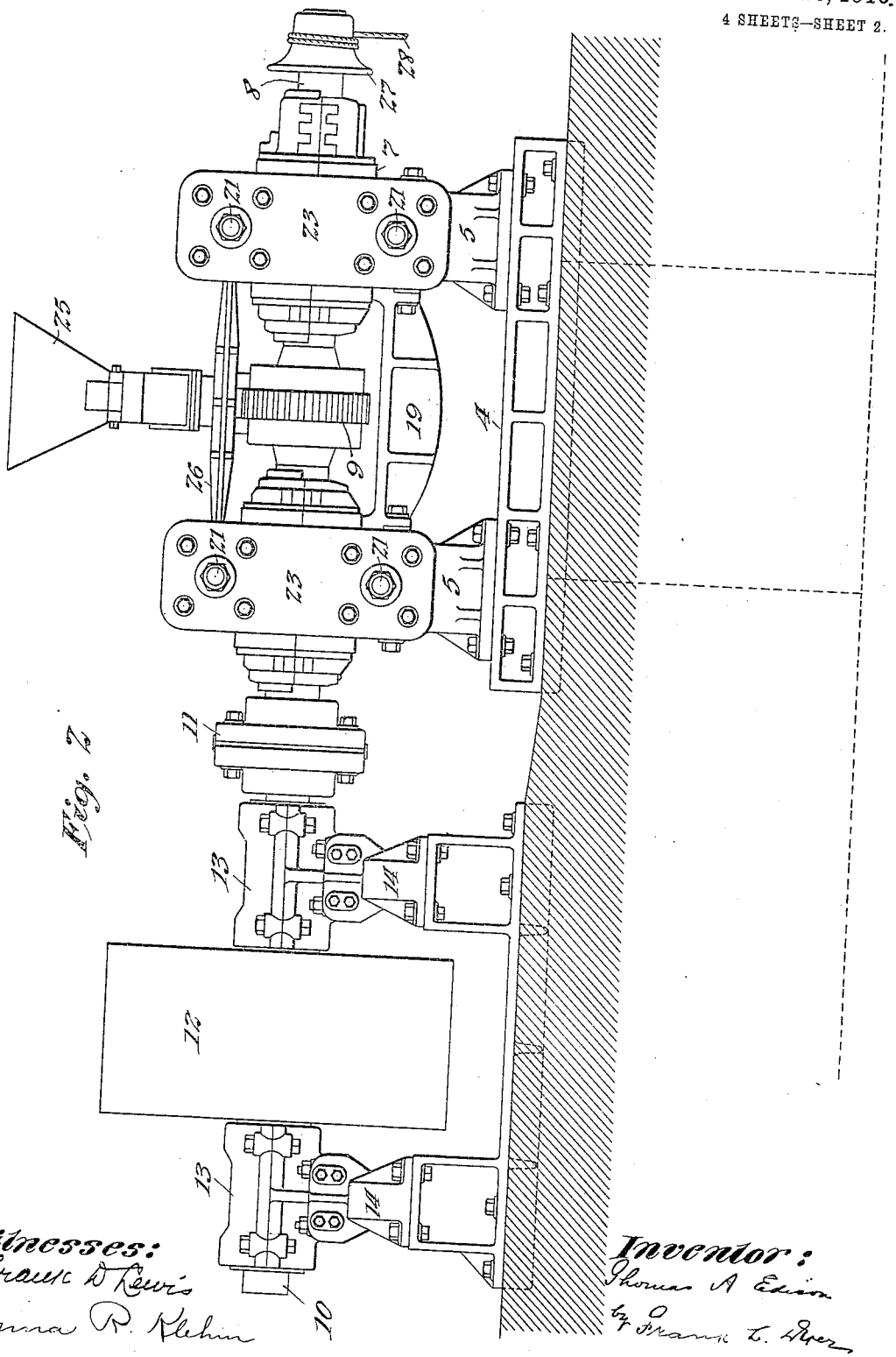

Fig. 2.

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4 SHEETS—SHEET 3.

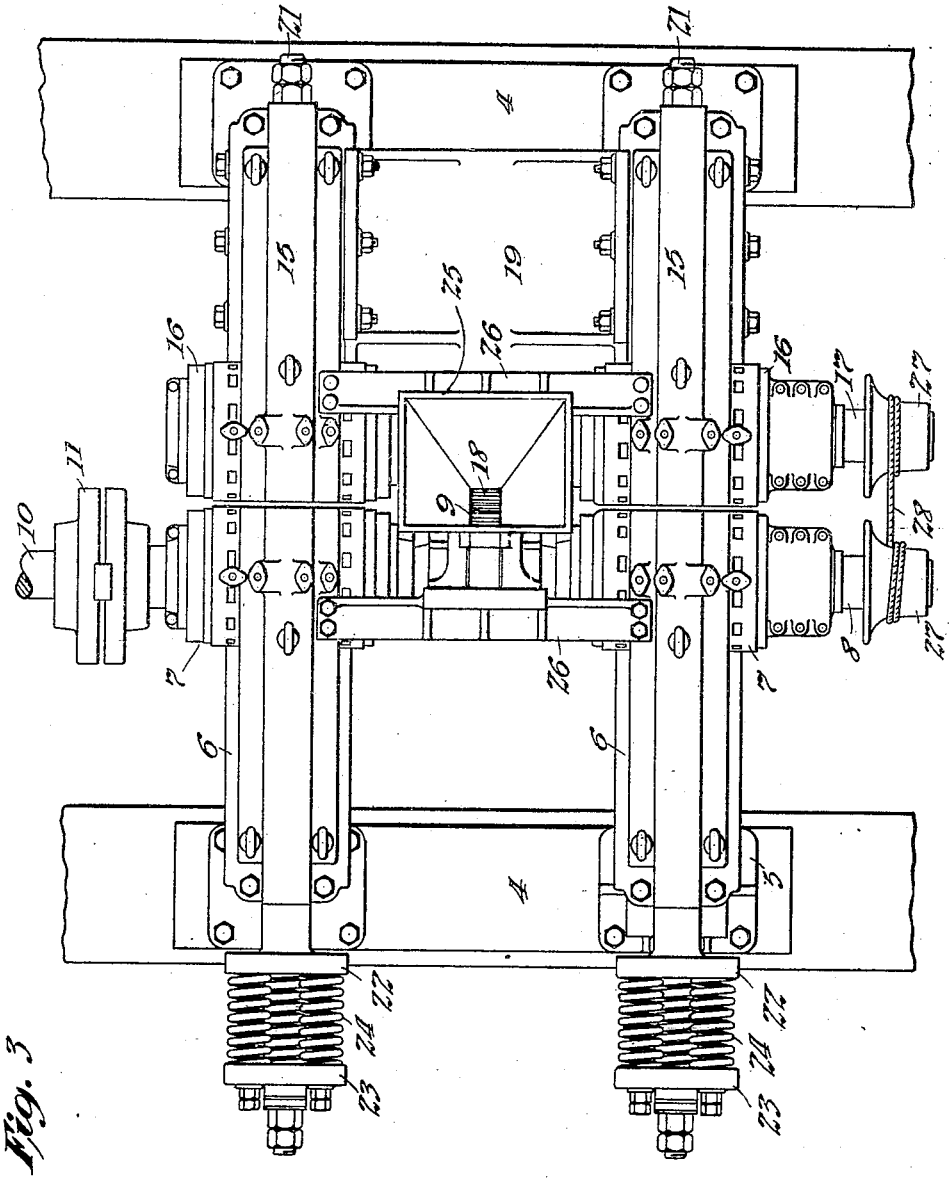

Fig. 3

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4 SHEETS—SHEET 4.

Fig. 4

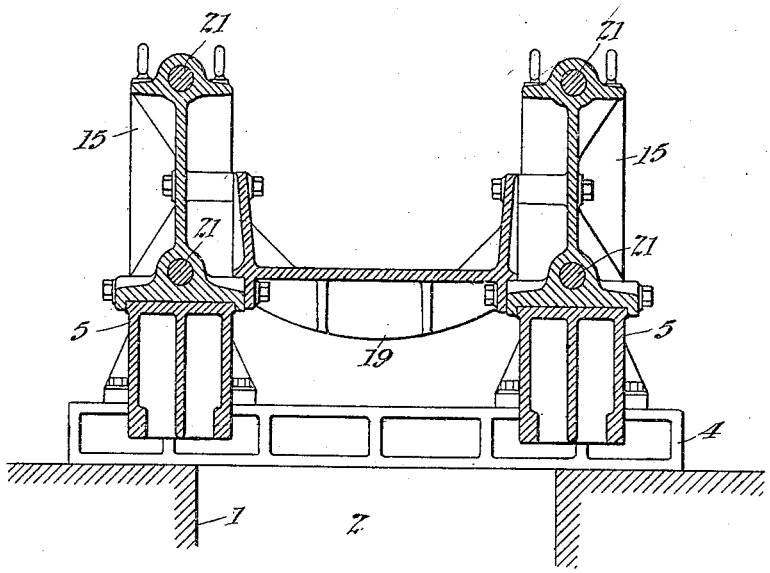
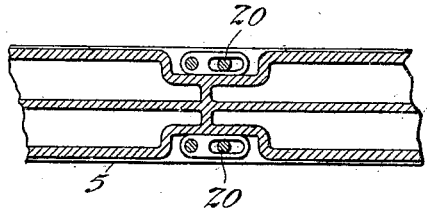


Fig. 5



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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, ORANGE, NEW JERSEY.

CRUSHING-ROLLS.

962,823. Specification of Letters Patent. **Patented June 28, 1910.**

Application filed September 18, 1906. Serial No. 335,116.

To all whom it may concern:

Be it known that I, THOMAS ALVA EDISON, a citizen of the United States, residing at Llewellyn Park, Orange, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Crushing-Rolls, of which the following is a description.

My invention relates to new and useful improvements in crushing rolls, adapted particularly for crushing Portland cement.

The objects of my invention are to provide a construction of crushing rolls for the purpose, in which the rolls would be always kept in perfect alinement so as to operate to the best advantage, regardless of irregularities in the stream of material fed to the same, and to provide means by which the driven roll may be started to rotate at the commencement of the crushing operation.

Heretofore, in the construction of crushing rolls for the purpose, difficulty has been experienced in maintaining the rolls in alinement, resulting in the shafts becoming distorted and consequent injury to the journal boxes. My improved crushing rolls are of a construction in which this objection has been effectively overcome. Furthermore, in the operation of very heavy crushing rolls, such as would be necessary for the crushing of cement clinker, the rolls have been either geared together or independently driven. With my improved crushing rolls, I provide a construction in which the negative roll is operated from the driven roll through the stream of material passing between them. This not only provides a simpler and cheaper construction, but when the rolls are formed on their peripheries with relatively shallow corrugations (as is preferable to assist in the more rapid feed of material between them) the wearing of the rolls does not in any way affect the corrugations, which always retain their original definition. With rolls of enormous weight, such as those which I employ, it would be practically impossible to start the negative roll into operation through the effect of the material between it and the driven roll, and my device provides effective means whereby the negative roll may be put in rotation from the driven roll, and before the stream of material is introduced between them.

In order that the invention may be better understood, attention is directed to the accompanying drawings, forming part of this specification, and in which—

Figure 1, is a side view of the improved rolls, embodying the invention in its preferred form, Fig. 2, an end view of the same, Fig. 3, a plan view, Fig. 4, a section on the line 4—4 of Fig. 1, and Fig. 5, a detail sectional view on the line 5—5 of Fig. 1, looking upwardly.

In all of the above views, corresponding parts are represented by the same numerals of reference.

The machine is carried, preferably on a concrete or cement foundation 1, formed with a pit 2, in which may be located a conveyer belt 3, for carrying off the crushed material. Carried by the foundation 1 are two heavy cross pieces 4—4, keyed to the foundation as shown, and extending across the pit 2, and bolted to the cross pieces 4—4 are heavy truss beams 5—5, constituting the main frame of the machine. Bolted rigidly to the cross beams 5—5 are stationary blocks 6—6, in which are located bearings 7 for the shaft 8 of the positive or driving crushing roll 9, the crushing surface of which is relatively narrow, as shown. The shaft 8 is driven from a driving shaft 10 through a coupling 11 of any suitable construction. The shaft 10 carries the driving pulley 12 and is mounted in two bearings 13, carried on suitable frames 14, as shown. Mounted on the cross beams 5—5 are the long heavy movable blocks 15, carrying bearings 16—16, in which is mounted a shaft 17 of the negative or driven crushing roll 18. This roll is driven from the driving roll 9, through the intermediate stream of material in the process of crushing. Heretofore difficulty has been experienced in maintaining the alinement of the shafts 8 and 17, resulting in injury to the bearings therefor. With the improved construction in crushing rolls, I employ a heavy bracket 19, extending between the long movable blocks 15 and bolted to the same, whereby the two movable blocks operate practically as a single piece. The movable blocks 15 are secured to the cross pieces 5 by bolts 20, which work in slots (see Fig. 5) so as to permit the blocks to move slightly. Extending between the blocks 6 and 15 on each side of the machine, are two tie rods 21, which work between plates 22 and 23, between which are located the springs 24,

which normally hold the crushing rolls in their proper position with a powerful pressure, but permit the rolls to separate under the work. Material is fed to the crushing rolls through a hopper 25, supported by cross pieces 26, bolted to the blocks 6—6 and sliding on the blocks 15—15 respectively. Carried on the shafts 8 and 17 are two "nigger heads" 27, around which a rope 28 may be passed, as shown, whereby when the machine is to be started, the negative roll 18 may be rotated from the driving roll. After the negative roll has been started, it will be rotated effectively through the stream of material to be crushed, passing between them, the rope unwinding and being removed from the "nigger heads."

Having now described my invention, what I claim as new and desire to secure by Letters Patent is as follows:—

1. In crushing rolls, the combination of a positive or driving roll and a negative roll driven through the materials being crushed between the rolls, and means whereby the positive roll may be temporarily connected directly to the negative roll to positively rotate the same, substantially as set forth.

2. In crushing rolls, the combination with the positive roll and means for driving the same, of a negative roll driven through the material being crushed between the rolls, and a "nigger head" on the shaft of each roll, for connection by a rope in starting the negative roll, substantially as set forth.

This specification signed and witnessed this 11th day of Sept. 1906.

THOS. A. EDISON.

Witnesses:
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