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A. K. NOWAK

FEEDER FOR BRIQUETTING PRESSES

Filed July 23, 1921

Fig. 1.

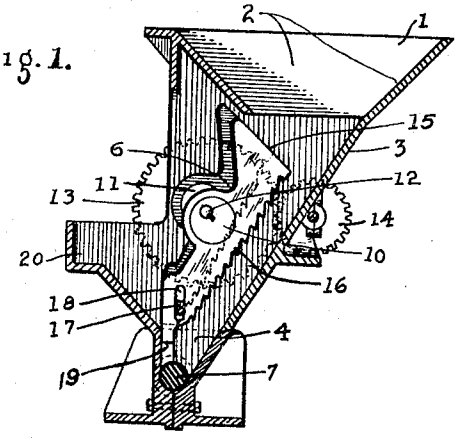


Fig. 2.

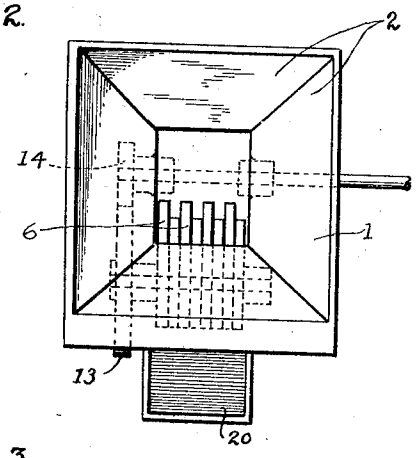
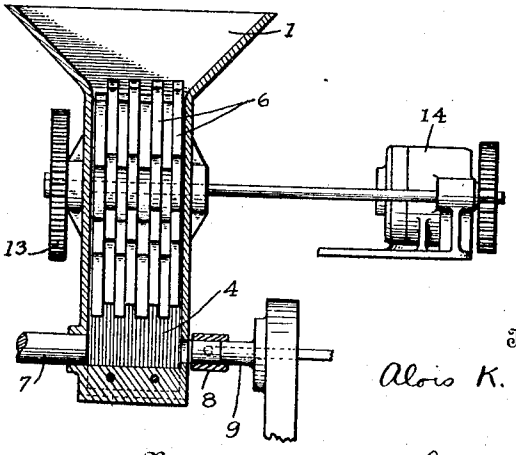


Fig. 3.



Inventor

Alois K. Nowak

By

Lloyd L. Evans

Attorney

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UNITED STATES PATENT OFFICE.

ALOIS K. NOWAK, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF TO FRANK H. SMITH, OF CANTON, OHIO.

FEEDER FOR BRIQUETTING PRESSES.

Application filed July 23, 1921. Serial No. 487,090.

This invention relates to mechanism for continuously feeding loose material in a hopper to the plunger of a briquetting press operating in the bottom thereof.

The general object of this invention is to provide a feeding mechanism capable of more efficiently feeding loose material to a briquetting press.

A more specific object of this invention is to provide a feed mechanism capable of effectively agitating material in the hopper to prevent formation of arches.

A further object is to provide effective means for disintegrating such agglomerations of material as tend to obstruct or impede the flow.

A further object is to so construct and arrange the disintegrating devices that they will be effective to force the disintegrated material toward the bottom of the hopper.

A further object is to provide means for compacting the material in the bottom of the hopper beneath the feeding mechanism.

Other objects will be apparent on reading the following specification in connection with the drawings.

In the drawings, Figure 1 is a vertical sectional view taken transversely of the operating shaft and showing the feed elements in elevation.

Fig. 2 is a top plan view.

Fig. 3 is a vertical sectional view taken at the rear of the feed mechanism.

In the drawings is shown the preferred form of this invention. The hopper 1 is a feed hopper having inclined sides 2 at the upper end and a long inclined side 3 along which the material moves to bottom portion 4. The side opposite the side 3 is partially open to accommodate the reciprocating feed members 6. Across the bottom of the hopper a reciprocating plunger 7 operates. The plunger carries the material out of the hopper into a mould 8 which is reciprocated by suitable mechanism upon a backing block 9.

The reciprocating feeding members 6 are mounted upon two sets of eccentrics 10 and 11 offset 180° with respect to each other on the operating shaft 12. The shaft 12 is continuously driven through suitable gearing 13 by motor 14. The members 6 are mounted close together on the shaft 12 and have enlarged upper ends providing elongated material engaging edge faces 15 which form an interfingered reciprocating bar conveyor bed operating on the superposed material in the hopper to continuously agitate it and convey it toward the wall 3. The longitudinal edge faces 16 of the feeding members are disposed above and overlie the inclined wall 3 of the hopper throughout a substantial portion of its length. The faces 16 are serrated to obtain better feeding action. The lower end of the feeders are provided with vertical slots 17 through which pass a stationary rod 18. By this arrangement the lower ends of the feeders are confined to a substantially vertical up and down motion which causes the horizontal lower faces 19 thereof to tamp the material into a compact mass at the bottom of the hopper.

The confining of the lower ends of the feeder bars to substantially a vertical movement has the effect of increasing the lateral throw of the upper ends of the feeder bars which renders the agitating and conveying action of the upper end of the feeder bars more effective, and causes the disintegration of the material to be effected as the material enters between the side wall 3 and the upper ends of serrated edge faces 16, the angular motion of the bars tending to crowd the material toward the bottom of the hopper and compact it therein.

The close spacing of the flat reciprocating members causes them to effectually prevent the escape of material between them. However, any material working through between the feed members accumulates in the extension 20 at the rear of the hopper and is fed by the tamping ends 19 into the bottom of the hopper.

Furthermore, it is to be understood that the particular forms of apparatus shown and described, and the particular procedure set forth, are presented for purposes of explanation and illustration and that various modifications of said apparatus and procedure can be made without departing from my invention as defined in the appended claims.

What I claim is:

1. In a feeder, a plurality of interfingering reciprocating bars, each of said bars having elongated angularly disposed longitudinal and end edges, and means for actuating said bars to continuously move mate-

rial across the ends of the bars and longitudinally thereof.

2. In a feeder, a material supporting surface, a plurality of interfingering reciprocating bars superposed over said surface and extending longitudinally thereof, said bars having elongated end edges angularly disposed with respect to said surface, and means for actuating said bars to continuously move material across the ends of the bars towards said supporting surface and longitudinally of the supporting surface.

3. In a feeder, a material supporting surface, a plurality of interfingering reciprocating bars superposed over said surface and extending longitudinally thereof, means for moving said bars bodily toward and from and longitudinally with respect to the supporting surface, said bars having a greater amplitude of movement toward and from said surface at the receiving end than at the discharge end.

4. In a feeder, a feed hopper having an inclined wall, a plurality of interfingering reciprocating bars intermediate the top and bottom of the hopper, extending longitudinally of the inclined wall and having elongated upper edges disposed at an inclination opposite to that of the said wall and means for moving said bars toward and from said wall and longitudinally with respect thereto.

5. In a feeder, a hopper having an inclined wall, interfingered reciprocating bars superposed over said inclined wall, a single drive shaft, staggered eccentrics thereon for actuating said bars and means for restricting the lower ends of the bars to substantially vertical up and down movement.

6. In a feeder, a hopper, discharging means movable across the bottom of the hopper and means within the hopper operable to disintegrate the material, feed the disintegrated material toward the bottom of the hopper and to compact said disintegrated material in the bottom of the hopper.

7. In a feeder, a material supporting surface, a series of interfingering reciprocating bars mounted upon staggered eccentrics, said bars each having one edge disposed above said supporting surface, said bars having also edges arranged to form a supporting bed for material whereby upon reciprocation of the bars said first mentioned edges operate to move material along the supporting surface and said second mentioned edges operate to move the material thereon toward said supporting surface.

8. In a feeder for a briquetting press, a hopper having a material supporting inclined wall, a plurality of interfingering serrated, reciprocating bars overlying said inclined wall, and extending longitudinally thereof, means for moving said bars bodily toward and from and longitudinally with respect to said wall.

9. In a feeder a hopper, discharging means movable across the bottom of the hopper and means within the hopper operable to move the material toward one wall of the hopper and then downwardly to the bottom of the hopper, whereby the material is disintegrated and compacted in the bottom of the hopper.

10. In a feeder for a briquetting press, a hopper, a plunger movable through the hopper for pressing the material to be briquetted, a plurality of members movable to cause such material to be carried toward one wall of the hopper and thence toward the plunger, said members having additional means to compact the material in front of the plunger, whereby the plunger engages material partially compacted.

In testimony whereof, I hereunto affix my signature.

A. K. NOWAK.