June 10, 1952 H. L. McCLAIN 2,599,852

MORTAR MIXER AND TUMBLER

Filed Jan. 27, 1951 2 SHEETS—SHEET 1

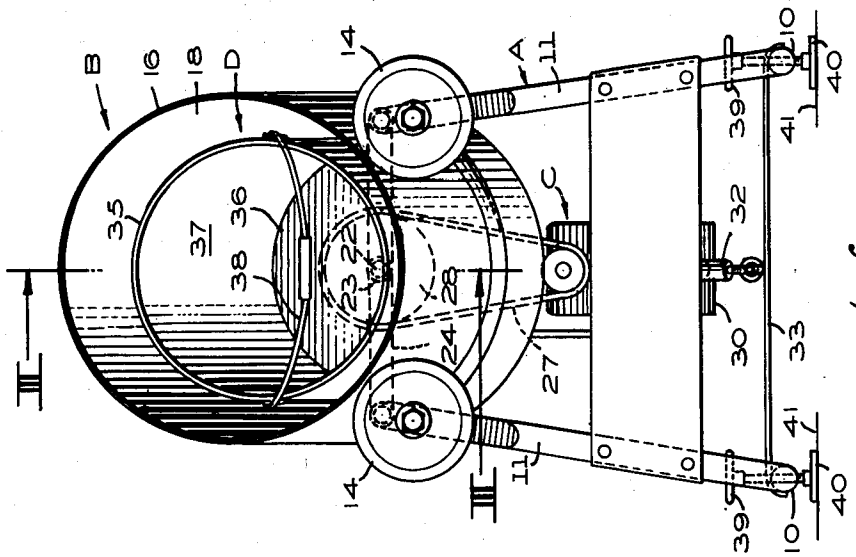


Fig. 2.

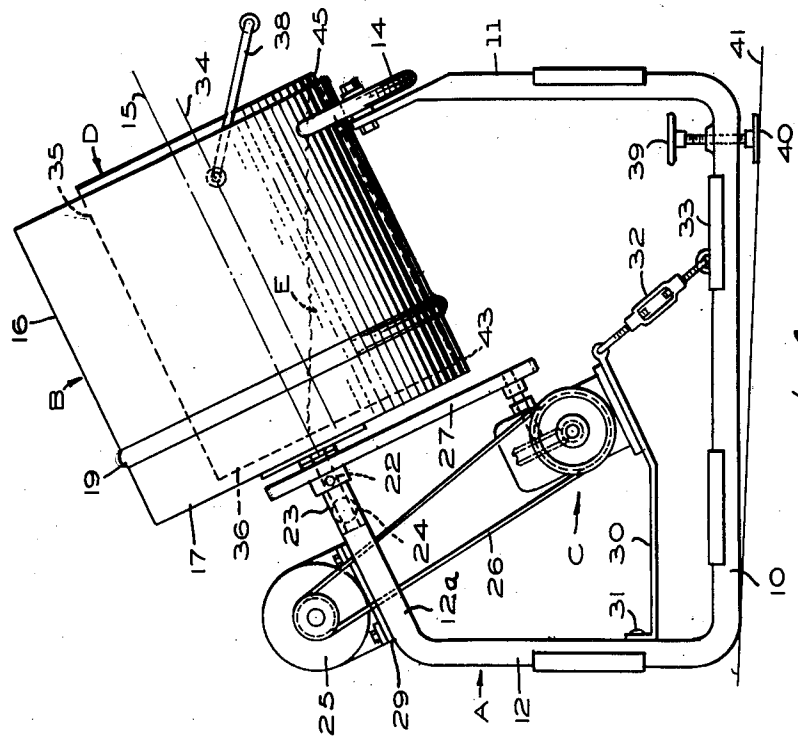


Fig. 1.

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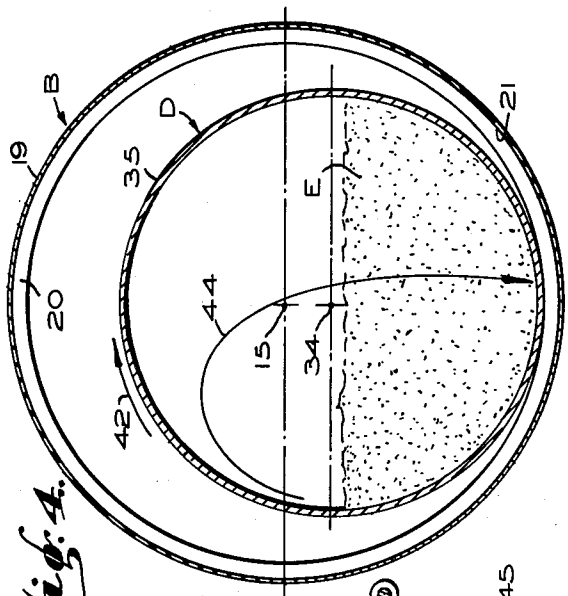


Fig. 4.

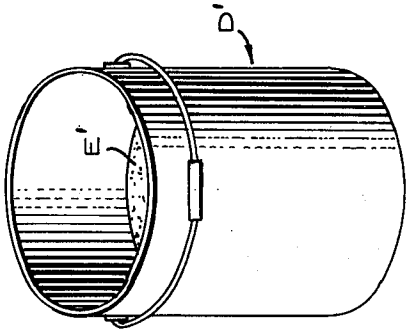


Fig. 5.

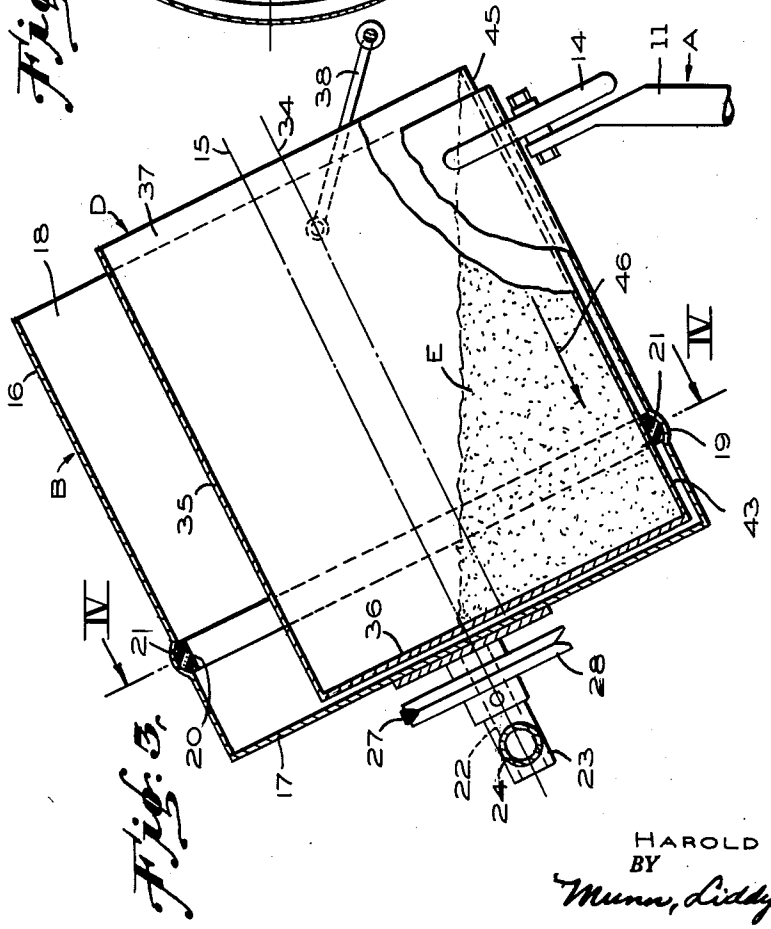


Fig. 3.

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UNITED STATES PATENT OFFICE

2,599,852

MORTAR MIXER AND TUMBLER

Harold L. McClain, Walnut Creek, Calif.

Application January 27, 1951, Serial No. 208,157

1 Claim. (Cl. 259—177)

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The present invention relates to a mortar mixer and tumbler. It consists of the combinations, constructions, and arrangement of parts, as hereinafter described and claimed.

It is a well-known fact that mortar, as used by bricklayers, will set, if it is allowed to stand. An object of my invention is to provide a mortar-mixing piece of equipment, which is designed to provide a convenient and continuous method of mixing the mortar, keeping the mix "alive" during long periods of usage on slow work.

Although I refer to the mixing of mortar, it will be apparent as the specification proceeds that plaster, cement, and other plastic materials may be mixed and tumbled in my equipment.

More specifically described, I propose to rotate a mortar-carrying bucket continuously for the purpose of keeping "alive" the supply of mortar. One, or more, additional buckets are provided so that the bricklayer, or bricklayers, may carry the mortar to the job. Thus, these buckets may be easily cleaned after the work has been completed. The main part of the equipment, including a rotatable drum, is kept free of mortar.

Other objects and advantages will appear as the specification continues. The novel features of the invention will be pointed out in the appended claim.

Drawings

For a better understanding of the invention, reference should be had to the accompanying drawings, forming part of this application, in which:

Figure 1 is a side elevational view of my mortar mixer and tumbler;

Figure 2 is a front elevational view thereof;

Figure 3 is a longitudinal sectional view taken along the plane III—III of Figure 2;

Figure 4 is a transverse sectional view taken along the line IV—IV of Figure 3 with the resilient ring being shown in elevation; and

Figure 5 is a perspective view of a smaller bucket used for carrying the mortar to the job.

While I have shown only the preferred form of my invention, it should be understood that various changes, or modifications, may be made within the scope of the annexed claim without departing from the spirit thereof.

Detailed description

As shown in the drawings, I provide a supporting frame designated generally at A. It includes a base 10 having pairs of upright front and rear standards 11 and 12, respectively, rising from opposite ends thereof. Idler wheels 14 are rotatably carried by the upper ends of the front standards.

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It will be noted that a drum B has its forward section supported by the wheels 14. This drum has its axis 15 mounted on an incline. The drum defines an inclined annular wall 16 and a bottom wall 17. The front of the drum is opened, as at 18. A concave-convex rib 19 extends circumferentially around the drum wall 16. On the inside of this drum, I provide a resilient ring 20, which is fitted into the annular groove 21 defined by the concaved side of the rib. This ring turns with the drum and is secured thereto in any suitable manner.

For the purpose of supporting the rear section of the drum, I provide a stub shaft 22, which is fixed to the bottom wall 17. This shaft is journaled in a centrally-disposed inclined bearing 23. The latter is carried by a transverse member 24 fixed to the rear pair of standards 12. Thus the wheels 14 and the shaft 22 support the drum B for rotation around its inclined axis 15 (see Figures 1 and 3).

Rotary motion is imparted to the shaft 22 so as to rotate the drum B. This is accomplished by a motor 25, which is operatively connected by a belt drive 26 to a speed reduction unit C, the latter being connected by a belt drive 27 to a pulley 28. The latter is fixed to the shaft 22. Of course, other suitable means may be employed for turning the drum B.

It will be found convenient to mount the motor 25 on a platform 29, which is secured to upper inclined sections 12*a* of the rear pair of upright standards 12 (see Figure 1). I have shown the speed reduction unit C as being carried by a yielding platform 30, which is anchored at its rear section by screws 31 to the standards 12. The forward section of the platform 30 may be adjusted by a turnbuckle 32 so as to place the proper tension on the drive belts 26—27. This turnbuckle is anchored to a plate 33, which is fixed to the base 10 of the supporting frame.

In actual practice, the drum should be turned at about ten revolutions per minute. However, I do not desire to be limited in this respect.

Figures 1 to 4, inclusive, disclose a mortar-carrying bucket D, which is removably telescoped into the drum B, with its longitudinal axis 34 arranged at an incline substantially paralleling the axis 15 of the drum. It will be observed that axis 34 of the bucket is eccentrically disposed below the drum axis 15, and that the bucket is smaller in diameter than the drum.

In its structural features, the bucket has an

annular wall **35**, and a bottom wall **36**, the top of the bucket being open as at **37**. A lifting bail **38** is provided to facilitate insertion of the bucket into the drum or removal therefrom.

The mortar E to be mixed and maintained in a "live" state is placed in the bucket D. Thereupon, this bucket is inserted into the drum, with the annular wall **35** of the bucket resting on the resilient ring **20**. When the drum is turned, the bucket will be rotated at a faster speed, causing a thorough mixing of the mortar. No vanes are necessary in the bucket, the mixing being accomplished by the tumbling action of the mortar.

Jack screws **39** are provided on the base **10**, with their feet **40** resting on the underlying surface **41**. These screws may be adjusted so as to change the inclination of the drum and bucket axes **15** and **34**, respectively.

Referring now to Figures 3 and 4, I show the bucket D as being rotated in the direction of the arrow **42**. The upper part of the mortar at the lower section **43** of the bucket will be picked up by the interior peripheral wall of the bucket and carried upwardly, finally tumbling back as suggested by the arrow **44** into the other mortar.

As the mortar is elevated from the lower section **43** of the bucket, other mortar will gravitate downwardly from the higher section **45** of the bucket to the lower section, as suggested by the arrow **46** in Figure 3. Thus the mortar is tumbled constantly while the drum B is turned, keeping the mortar "alive" and ready for instant use.

The bricklayer may be provided with a smaller bucket D', as shown in Figure 5, for carrying a supply of mortar E' to the job. Of course, the remainder of the mortar remains in the larger bucket D and constantly is kept ready for use by the bricklayer.

Accordingly, when the equipment is closed down, only the larger and smaller buckets D and D', respectively, must be cleaned. Figure 3 discloses the upper end of the bucket D extending beyond the top end of the drum B. This will prevent any mortar from falling into the interior of the drum.

The entire unit requires a relatively small storage space, since the buckets may be nested one within the other and placed in the drum.

It will be found convenient to use two five-gallon or other suitable size buckets. While one is being used by the workman, the other may be disposed in the mixer. In the event that the mortar (or other material) starts to harden in the workman's bucket, the latter may be placed back in the machine for a short time for mixing the mortar again.

I claim:

In combination: a drum mounted for rotation around an inclined axis; the drum including an inclined annular wall; an annular resilient ring extending around and fixed relative to the interior surface of the inclined drum wall; means for rotating the drum; and a mortar-carrying bucket removably disposed in the drum, and having its longitudinal axis substantially paralleling the inclined axis of the drum; the bucket having an inclined annular wall riding on the annular ring so that the bucket will be rotated when the drum and its resilient ring are turned.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
481,532	Smith	Aug. 23, 1892
638,688	Anderson	Dec. 12, 1899
692,059	Morse	Jan. 28, 1902
1,019,917	Ransome	Mar. 12, 1912
1,296,445	Webster	Mar. 4, 1919
1,920,025	Thordsen	July 25, 1933
2,507,349	Rice	May 9, 1950