July 26, 1949. I. J. KUERT ET AL 2,477,066

HOPPER CONSTRUCTION

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Fig. 1.

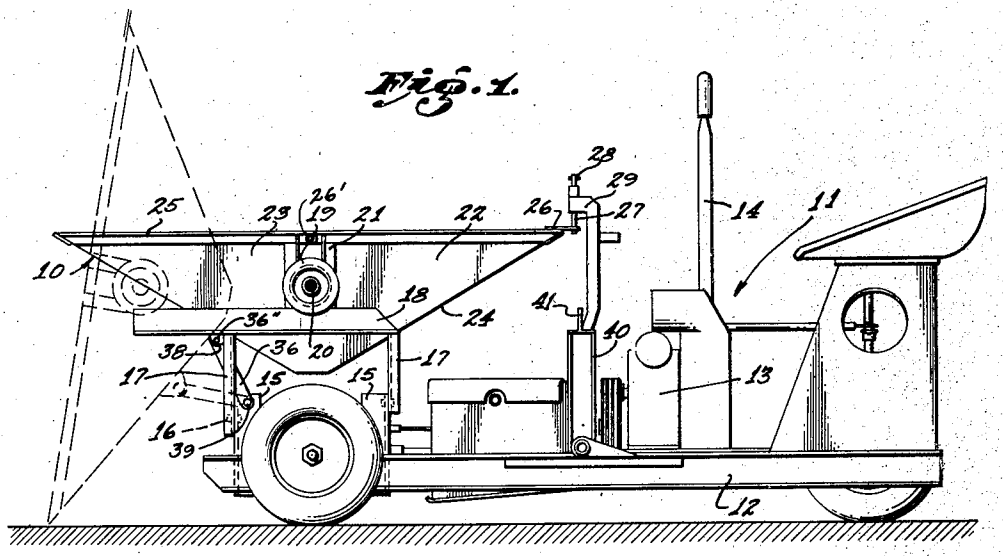


Fig. 2.

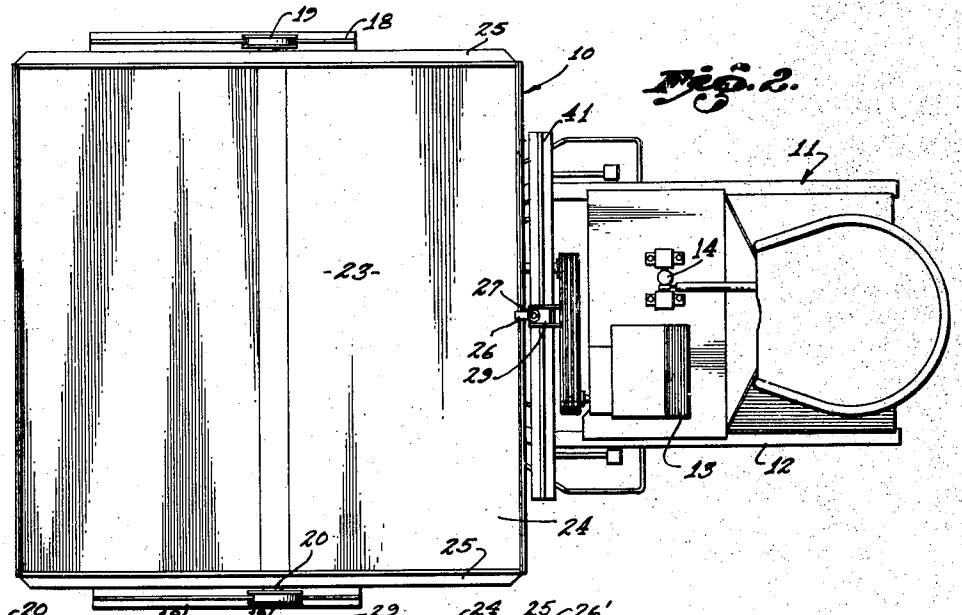
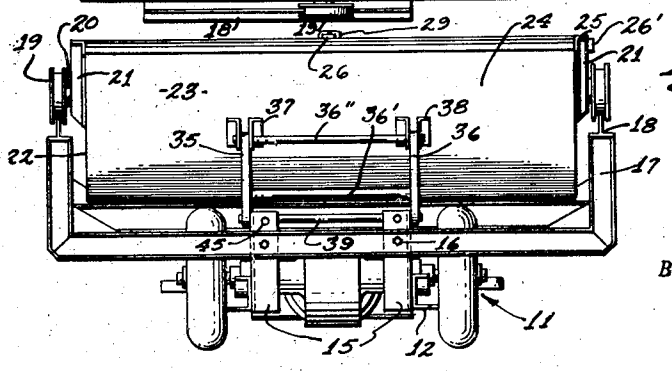


Fig. 3.



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Fig. 4.

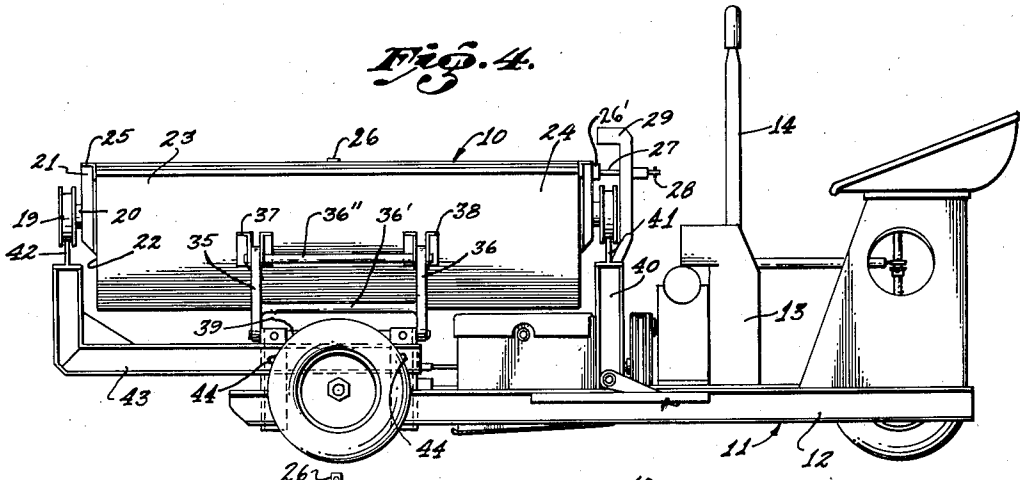


Fig. 5.

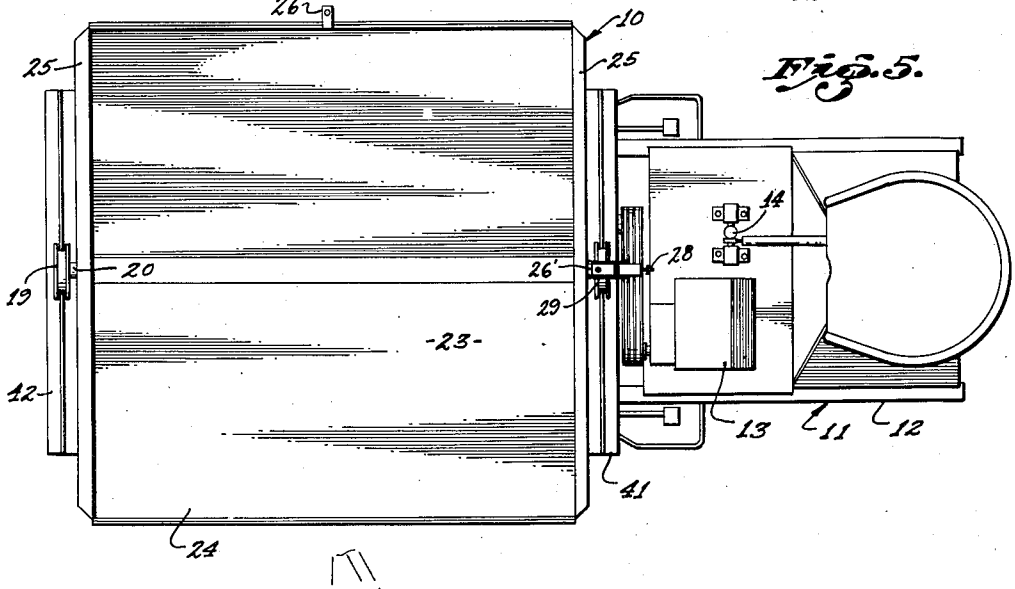
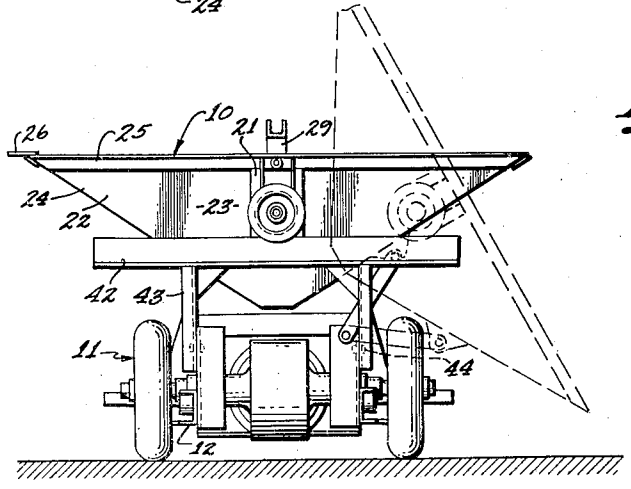


Fig. 6.



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HOPPER CONSTRUCTION

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Application April 28, 1947, Serial No. 744,355

3 Claims. (Cl. 298—12)

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This invention relates to a hopper construction.

The general object of the invention is to provide an improved hopped construction which is particularly adapted for use in conveying aggregate and other material to a concrete mixing apparatus.

A further object of the invention is to provide a novel rolling hopper construction including a novel track member.

An additional object of the invention is to provide a hopper construction including a novel rolling hopper and track and wherein novel means is provided for dumping the hopper and for limiting the movement thereof.

Other objects and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawings, wherein:

Fig. 1 is a side elevation of a mobile batch loader showing my improved hopper construction;

Fig. 2 is a top plan view showing the hopper and associated parts;

Fig. 3 is a front end view, and

Figs. 4, 5 and 6 are views corresponding to Figs. 1, 2 and 3, respectively, showing the hopper mounted for side dumping.

Referring to the drawing by reference characters, we have shown our invention as embodied in a hopper construction which is indicated generally at **10**. The hopper is shown as mounted on a mobile batch loader which is indicated at **11**. The batch loader includes a supporting frame **12**, a driving motor **13** and a steering member **14**. The loader **11** is described and claimed in our copending application Serial No. 744,354, filed April 28, 1947.

Upon the frame **12** we mount two pairs of spaced vertically extending support brackets **15** which are fastened to the frame **12**. To these brackets we movably secure, as by bolts **16**, a pair of upwardly directed U-shaped track supports **17**. Secured upon the top of the track supports **17** we show inverted T-shaped rails **18** which form a track along which wheels **19**, arranged on shafts **20**, operate. The shafts **20** are secured on supports **21** mounted on the sides **22** of a hopper **23**. The hopper includes downwardly converging bottom members **24** which are of a generally inverted isosceles triangle shape. The top of the hopper **23** has an angle member **25** extending along the sides thereof to provide a reinforcement. To prevent shifting of the hopper while loading and transporting, a plate **26** is secured to the hopper

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and this receives a pin **27** which may be slid up and down by means of a handle member **28**. The pin **27** is slidable through a bracket **29** secured upon the frame **12**.

To effect a dumping operation of the hopper **23**, we provide a pair of arms **35** and **36**, integrally connected by a bar **36'**. The arms are pivotally attached by a rod **36''** to brackets **37** and **38**, respectively. The brackets **37** and **38** are secured on the lower forward end of the hopper. The lower ends of the arms **35** and **36** are pivotally attached to the adjacent supports **15** by a rod **39**.

In use the operator adjusts the pin **27** to the position shown in Fig. 1 and the load of aggregate or other material is deposited into the hopper **23**. The apparatus is then run to the desired location and then to effect the dumping operation the pin **27** is lifted by the handle **28** and the hopper is manually moved to the left in Fig. 1. As the hopper moves the arms **35** and **36** cause the hopper to gradually rotate to the dumping position shown in broken lines in Fig. 1.

The hopper is mounted for rotation upon and translation along the rails **18** and the hopper shaft **20** is arranged substantially at the center of gravity of a loaded hopper so that practically no work is done as the hopper moves to dumping position. The rotation caused by the arms **35** and **36** is at first slow during the dumping operation, then the speed picks up and is very rapid as the hopper approaches full dumping position. On level ground the hopper edge will strike and thus jar out adhering particles.

In operation, as the device nears the dumping area, the operator may raise the handle member **28** to free the pin **27** and thereupon the inertia of stopping can produce the dumping operation.

The construction provides a hopper with an extremely low top so that workmen may readily shovel material into the hopper.

The construction shown in Figs. 1, 2 and 3 provides for end dumping of the hopper but in some jobs it is essential that the dumping be at one side and when this is desired the arrangement shown in Figs. 4, 5 and 6 is employed.

For side dumping the rod **39** is removed, the bolts **16** are removed and the supports **17** and rails **18** are also removed. A track support **40**, secured to the frame **12**, has a rail **41** on the upper end thereof. A companion rail member **42** is arranged on a support **43**. The support **43** is held in place by bolts **44** which pass through the brackets **15**. The rod **39** is then passed through holes **45** in the brackets **15** and thus the hopper

23 is mounted for sidewise discharge as shown in broken lines in Fig. 6.

Having thus described our invention, we claim:

1. A hopper construction including a supporting frame, a pair of front support brackets and a pair of rear support brackets on said frame, upwardly directed track supports on the support brackets, a pair of spaced track forming rails secured to the upper ends of said track supports, a hopper having ends and having downwardly converging front and rear bottom members arranged between said rails, a pair of wheels on said hopper ends and engaging said rails, said wheels being coaxially mounted, a pair of spaced arms, a tension bar connecting said spaced arms, each of the support brackets having a pair of holes therein, said pair of arms being disposed adjacent to the rearward pair of support brackets, a rod extending through certain of said holes and pivotally engaging the arms to support the latter, and means pivotally connecting the arms to the rear bottom member of the hopper.

2. A hopper construction including a supporting frame, a pair of front support brackets and a pair of rear support brackets on said frame, said support brackets forming a square, a pair of upwardly directed U-shaped track supports, means to removably secure the track supports to the support brackets, a pair of spaced track forming rails secured to the upper ends of said track supports, a hopper having ends and downwardly converging front and rear bottom members and arranged between said rails, a pair of wheels on said hopper ends and engaging said rails, said wheels being coaxially mounted, said rails projecting forwardly from said frame, a pair of spaced arms, means connecting said spaced arms, each of the support brackets having a pair of holes therein, the holes being arranged at right angles to each other, said pair of arms being disposed adjacent to the rearward pair of support brackets, pivot means extending through certain of said holes and engaging the arms to support the latter, and means pivotally connecting the arms to the rear bottom member of the hopper.

3. A hopper construction including a supporting frame, a pair of front support brackets and

a pair of rear support brackets on said frame, said support brackets forming a square, a pair of upwardly directed U-shaped track supports, means to removably secure the track supports to the support brackets, a pair of spaced track forming rails secured to the upper ends of said track supports, a hopper having planar ends and having downwardly converging front and rear bottom members and arranged between said rails, a pair of wheels on said hopper ends and engaging said rails, said wheels being coaxially mounted, said rails projecting rearwardly from said frame, a pair of spaced arms, bars connecting said spaced arms, each of the support brackets having a pair of holes therein, the holes being arranged at right angles to each other and being aligned, said pair of arms being disposed adjacent to the rearward pair of support brackets, a rod extending through certain of said holes and pivotally engaging the arms to support the latter, the rear bottom portion of said hopper having spaced brackets on the lower face thereof, means pivotally connecting the arms to said last mentioned brackets, and a hopper supporting bracket on said frame, releasable means on said hopper support bracket normally supporting said hopper to prevent movement thereof while loading.

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