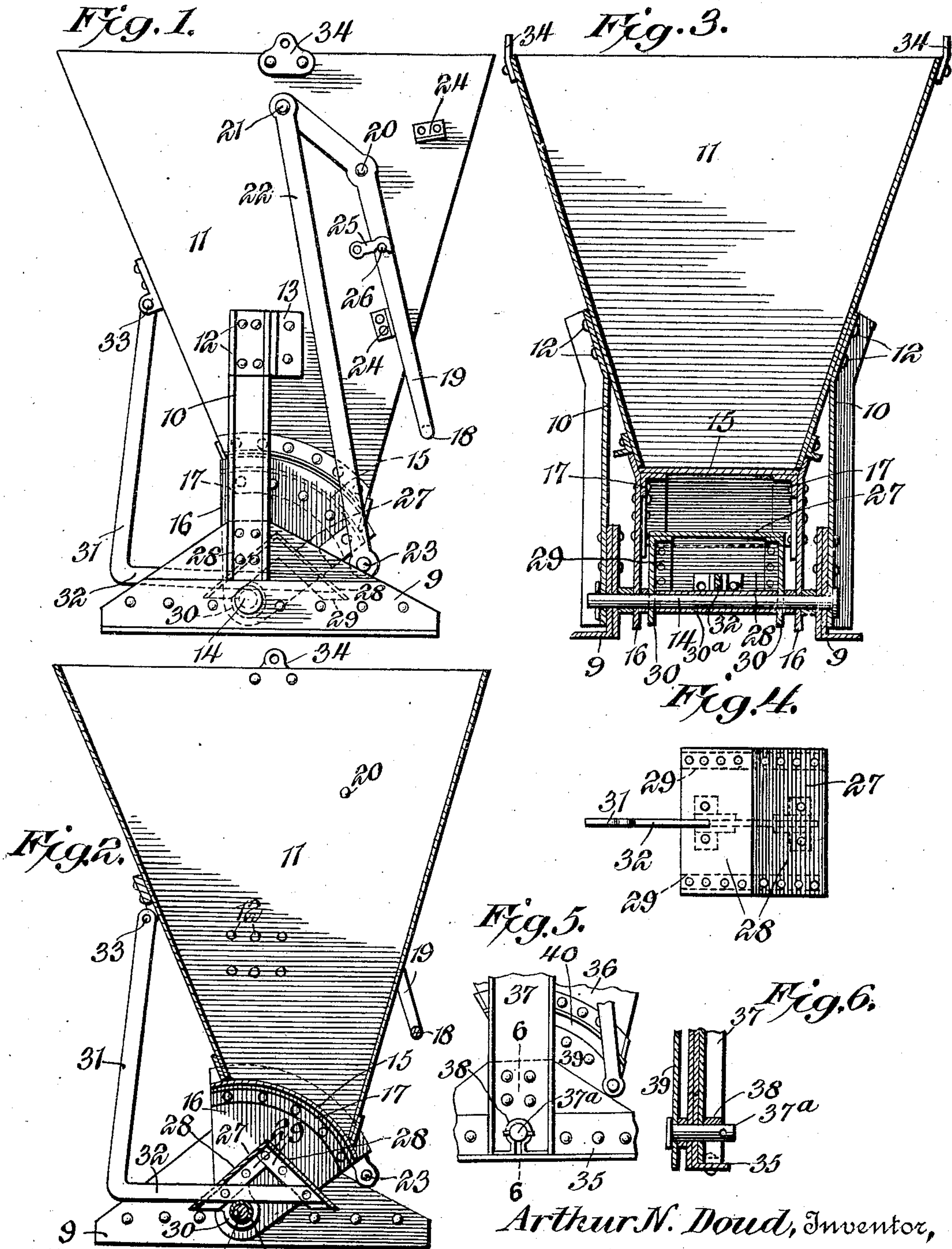


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 CONCRETE BUILDING AND HOLDING MECHANISM.  
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Patented Sept. 14, 1909.



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# UNITED STATES PATENT OFFICE.

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CONCRETE BUILDING AND HOLDING MECHANISM.

934,294.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed March 28, 1908. Serial No. 423,895.

*To all whom it may concern:*

Be it known that I, ARTHUR NATHAN DOUD, a citizen of the United States, residing at North Stockholm, in the county of St. Lawrence and State of New York, have invented a new and useful Concrete Building and Holding Mechanism, of which the following is a specification.

The primary object of the present invention is to provide a holder or receptacle, together with novel and effective means whereby concrete or other material placed in said holder or receptacle can be delivered from the same in any amount desired, thus making the structure particularly useful in connection with the construction of concrete buildings, floors, walls, and the like, the holder or receptacle being transported.

One embodiment of the invention is illustrated in the accompanying drawings, but it will be evident from an inspection of the appended claims that said invention is not limited to the structure disclosed.

In the drawings: Figure 1 is a side elevation of the mechanism. Fig. 2 is a vertical sectional view therethrough. Fig. 3 is a vertical sectional view at right angles to Fig. 2. Fig. 4 is a top plan view of the spreader. Fig. 5 is a side elevation of the lower portion of a modification of the invention. Fig. 6 is a detail sectional view on the line 6—6 of Fig. 5.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a base is employed, comprising spaced sections 9, from which rise standards 10. These standards are preferably channel bars, and secured to their upper ends, is a holder or receptacle in the form of a hopper 11. The upper ends of the standards are outturned so as to rest against the opposite side walls of the hopper, and are secured thereto by bolts or rivets 12 and angle brackets 13, which are fastened to the standards and to the adjacent walls. It will be noted that these standards are located at one side of the vertical center of the hopper.

A pivot bolt 14 connects the base sections 9 and bridges the space between them, thereby constituting a tie between said sections. This pivot bolt, as shown more particularly in Figs. 2 and 3, is located at one side of the

center of the hopper. The bottom of said hopper is open, but a closure is provided therefor, and is in the form of a plate 15, which is curved concentrically to the axis of the pivot 14 and has depending side ears 16 secured thereto and journaled on the pivot. The ears 16 are preferably connected to the plate 15 by angle irons 17, and extend upwardly above the lower edges of the hopper, outside the same, forming guide flanges, as illustrated in Fig. 3.

The location of the standards 10 at one side of a plane transversely cutting the vertical center of the hopper and the location of the pivot bolt for the closure passing through the standards as shown in Fig. 3 are important. The pivot bolt acts as a brace for the lower ends of the standards and also performs its proper function as the pivot for the closure. It is preferable that the pivotal axis of the closure or gate should be to one side of a vertical plane transversely cutting the center of the hopper, for the reason that in this position the gate or closure will remain in position when closed by the action of gravity; that is, when the gate is closed, the natural tendency of the gate is to remain closed because of its being pivoted to one side and this without the necessity of using any latch for the purpose of holding the gate closed. The standards reinforce the pivotal engagement of the gate. Therefore, the pivot bolt passes through the standards, and in order to provide for gravity holding the gate closed, the standards and the pivot bolt are mounted to one side of the center. It will thus be seen that these parts and their location have a special value in this construction. While any suitable means may be employed for operating this closure, in the present embodiment, a yoke is provided that embraces the hopper and comprises a cross bar 18 and side arms 19, the latter forming levers that are fulcrumed as shown at 20 between their ends on the opposite sides of the hopper. The upper and inner ends of the arms 19 are pivoted as shown at 21 to links 22, and the lower ends of said links are pivotally connected as illustrated at 23 to the opposite sides of the closure. Stops 24 limit the swinging movement of the arms, and said arms and consequently the yoke are normally held against movement by a latch 25



pivoted on the hopper and engaging a pin 26 carried by one of the arms 19. It will thus be evident that by swinging the yoke, the closure may be opened to any extent desired.

Means for spreading or directing the material from the hopper is also employed. In the embodiment shown, this means consists of an inverted substantially V-shaped structure constituting a spreader 27, the opposite divergent walls 28 of which are suitably braced, as shown at 29. This spreader has depending ears 30 that are mounted on the pivot 14, and a holding bar comprising angularly disposed arms 31 and 32 is employed for maintaining the spreader against movement, the arm 31 being fastened as shown at 33 to the side of the hopper; the arm 32 being connected to the walls of the spreader. Sleeves 30<sup>a</sup> are located between the various ears and between the outermost ears and base.

The operation of the structure will be clearly evident. If the yoke 18—19 is unlatched, it will be evident that by swinging the same, the closure may be opened to any extent desired, and the material, gravitating from the hopper, will be spread or divided by the device located beneath the same and on which it falls. This holder may be employed in various ways. For instance, it may be placed upon a car, or it may be suspended from a derrick or other suitable structure. For the latter purpose, ears 34 are connected to its upper end.

In case no spreading means is employed and the material is to be delivered downwardly, the structure disclosed in Fig. 5 is preferably utilized. In this embodiment of the invention, the base is designated 35, and the hopper 36 is mounted on the standards, one of which is shown at 37. The pivot in the present embodiment comprises two short stubs, one of which is illustrated and designated 37<sup>a</sup>. This stub has its outer end engaged in one of the base sections and is also embraced by a reinforcing strap 38. The inner end of the stub pivot has mounted thereon an ear 39 of the swinging closure 40. In other words, this form of construction is substantially the same as that first shown, except that the pivot is made in two sections, and the particular advantage for this arrangement is that there is nothing in the nature of an obstruction beneath the receptacle or hopper that will interfere with the passage of concrete or material.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing

from the spirit or sacrificing any of the advantages of the invention.

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

1. In a structure of the character set forth, the combination with a hopper having an open bottom, of a single movable closure for the bottom, and a spreader located beneath the hopper and closure and being independent of the latter, said spreader having portions extending in opposite directions.

2. In a structure of the character set forth, the combination with a portable hopper having an open bottom, of means whereby hoisting mechanism may be engaged with the hopper, base sections connected to the lower end of the hopper on either side of the mouth thereof and extending down below the same, said sections extending horizontally and adapted to support the hopper when disengaged from the hoisting machinery, a movable closure for the open bottom, and a spreader supported on the base sections beneath the bottom and its closure and having portions adapted to direct the material from the hopper in different directions.

3. In a structure of the character set forth, the combination with a receptacle having an open bottom, of a base connected thereto, a supporting element mounted on the base, a single swinging closure for the open bottom of the receptacle mounted on the supporting element, and a spreader mounted on the supporting element below and independent of the closure.

4. In a structure of the character set forth, the combination with a receptacle, of a pivot associated therewith, a swinging closure, and a spreader located below the receptacle, said closure and spreader being both mounted on the pivot.

5. In a structure of the character set forth, the combination with a receptacle, of a pivot associated with the receptacle, a swinging closure for the receptacle having ears engaged with the pivot, and a spreader located below the receptacle and closure and having ears engaged with the pivot.

6. In a structure of the character set forth, the combination with a base having standards, of a receptacle mounted on the standards and having an open bottom, a pivot mounted on the base and located below the receptacle, a closure for the bottom of the receptacle having depending ears journaled on the pivot, and a spreader comprising divergently disposed walls located over the pivot and having depending ears engaged with said pivot.

7. In a structure of the character set forth, the combination with a base, of a receptacle mounted thereon and having an open bottom, a pivot carried by the base, a substantially V-shaped spreader mounted on the



pivot and having an arm secured to the receptacle, and a swinging closure for the receptacle operating between the same and the spreader.

5 8. In a structure of the character set forth, the combination with a portable base comprising spaced supporting sections and spaced standards rising from said sections, of a receptacle secured to and between the stand-  
10 ards and having an open bottom, a movable closure for the bottom mounted on the base and operating between the standards, and a spreader also mounted on the base and located between the standards.

15 9. In a structure of the character set forth, the combination with a hopper having an open bottom, of a closure for said bottom, and a spreader located beneath the bottom and closure and comprising fixed opposite  
20 divergent walls, and means for fixedly holding the spreader in place beneath the open bottom of the hopper and beneath said closure.

25 10. In a structure of the character set forth, the combination with a hopper having an open bottom, of a closure for said bottom, a spreader located beneath the bottom and closure and comprising opposite divergent walls, and a holding bar comprising  
30 angularly disposed arms, one of which extends beneath and is secured to the spreader, the other being attached to the arm.

35 11. In a structure of the character set forth, the combination with a portable hopper having convergent walls on all four sides thereof and an open bottom, of a base comprising horizontally-extending spaced sections adapted to support the hopper,  
40 standards rising from the sections and having outwardly divergent upper ends that are secured to the opposed convergent walls of the hopper, and a swinging closure for the bottom of the hopper mounted between the standards and operating therein.

45 12. In a structure of the character set forth, the combination with a portable hopper having an open bottom, of means carried by the upper end of the hopper for engaging hoisting mechanism, base sections horizon-  
50 tally extending and connected to the hopper on either side of the mouth thereof for supporting the hopper when disengaged from

the hoisting mechanism, and a closure for the bottom of the hopper operating between said base sections.

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13. In a structure of the character set forth, the combination with a holder or receptacle having an open bottom, of a closure for said open bottom pivoted below the same and comprising a curved plate movable  
60 across the bottom, said closure having upstanding flanges located outside and extending above the lower edges of the opposite side walls of the holder or receptacle.

14. In a structure of the character set forth, the combination with a base frame comprising spaced sections, of a tie rod connecting the sections to prevent their spreading, a hopper or receptacle secured to and  
70 between the sections and having an open bottom, and a closure for the receptacle pivotally mounted on the tie rod.

15. In a structure of the character set forth, the combination with a hopper, of horizontally extending base sections adapted  
75 to support the hopper, opposed upright supporting standards, one on each base section, the upper ends thereof being secured to the opposite sides of said hopper and both located to one side of the center of the same,  
80 and a closure for the bottom of the hopper having a pivot bolt passing through the standards and said base sections, said pivot bolt being located at one side of the center of the hopper and said closure being curved  
85 substantially concentrically to the pivot bolt.

16. In a structure of the character set forth, the combination with a hopper having an open bottom, of a swinging closure for the bottom of the hopper pivoted below and  
90 to one side of the same, opposed closure operating levers pivoted to the hopper on opposite faces thereof, a transverse connection between the ends of the levers, and a link connection between the free ends of the  
95 said levers and the closure.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ARTHUR NATHAN DOUD.

Witnesses:

J. B. PRINGLE,  
ROSE E. FLYNN.