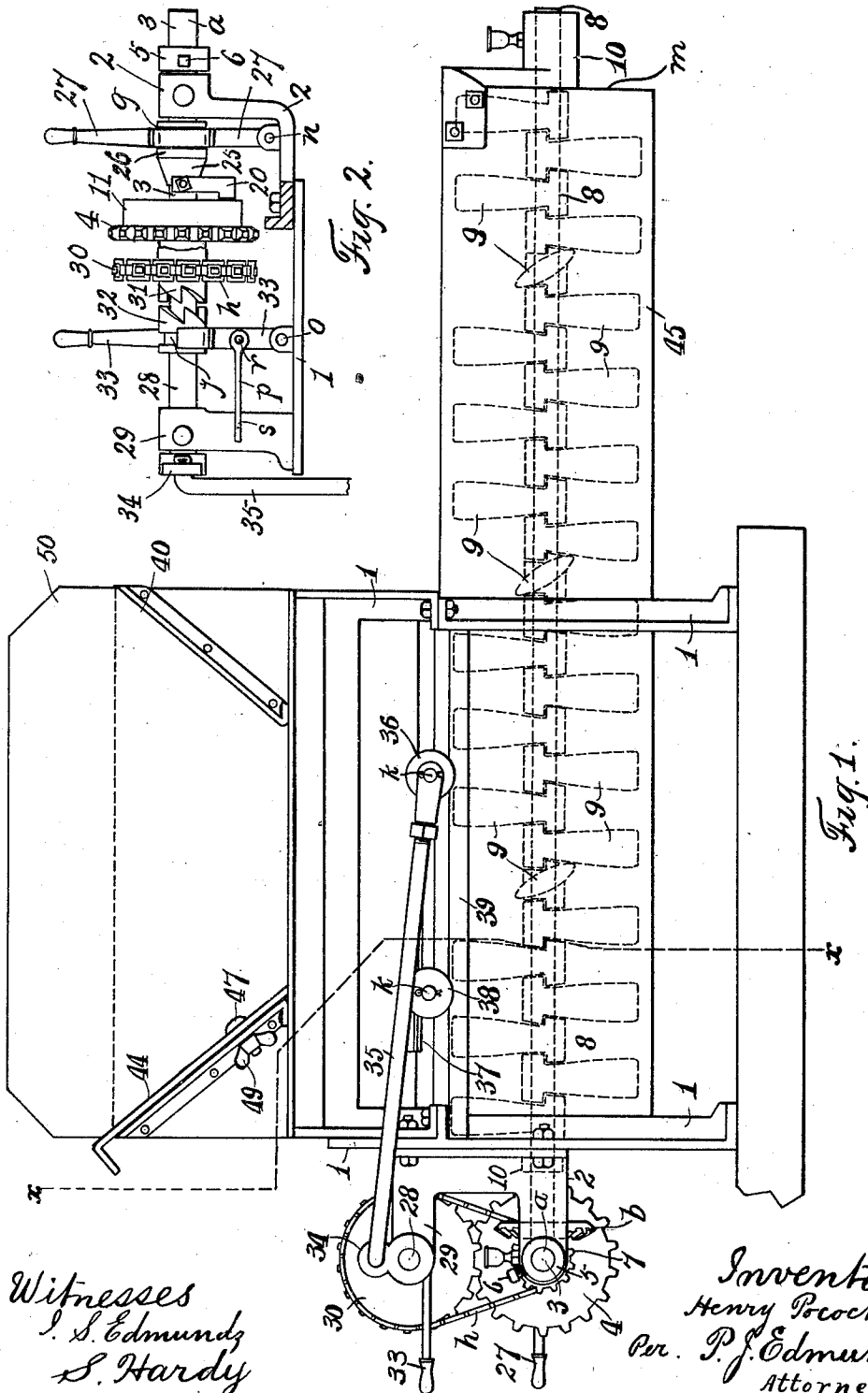


H. POCKOCK.
CONCRETE MIXER.
APPLICATION FILED JUNE 16, 1910.

1,005,302.

Patented Oct. 10, 1911.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

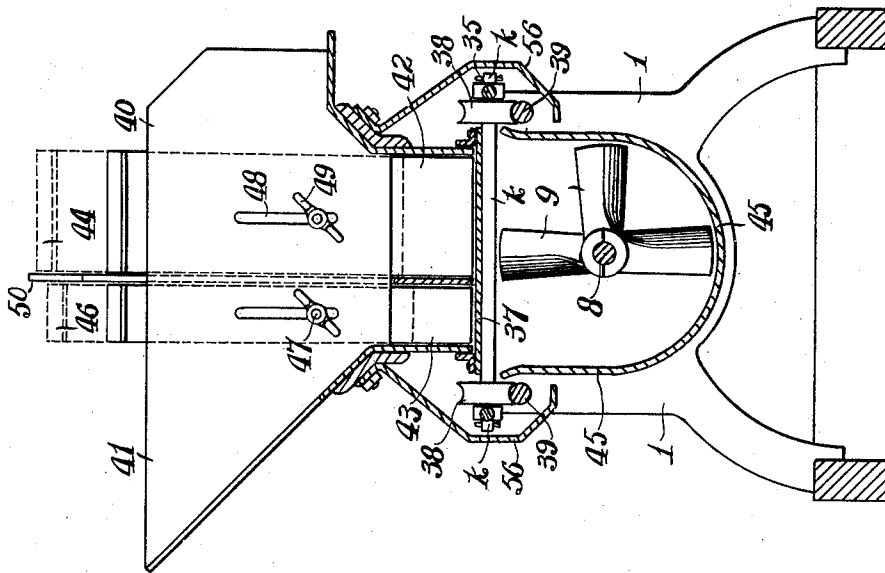


Fig. 4.

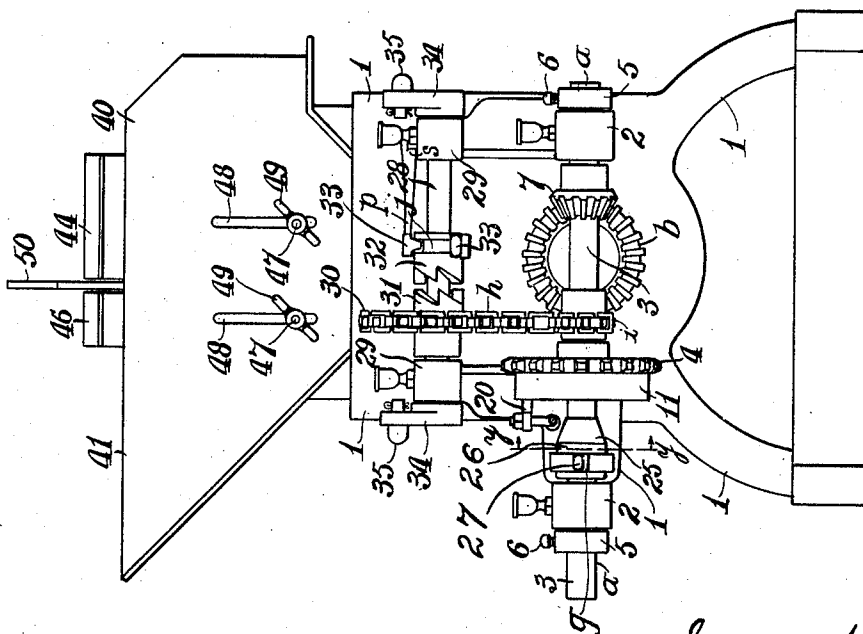


Fig. 3.

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3 SHEETS—SHEET 3.

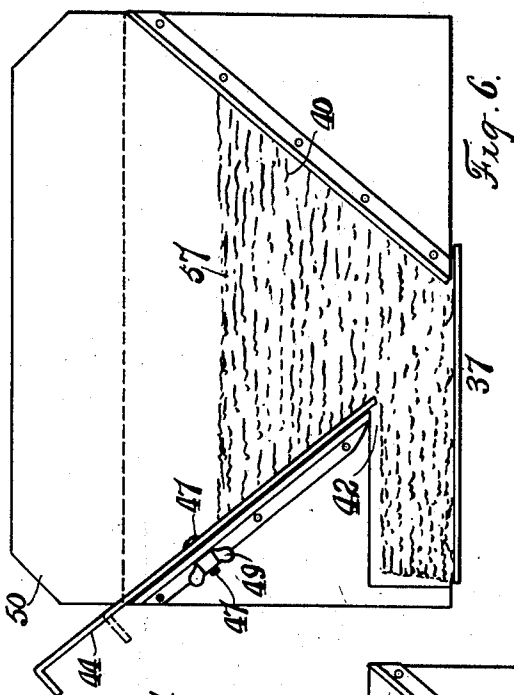


Fig. 6.

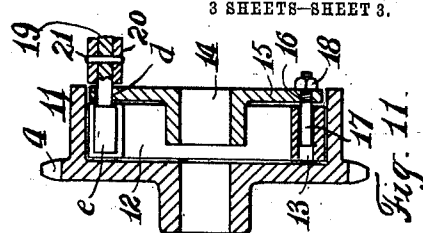


Fig. 11.

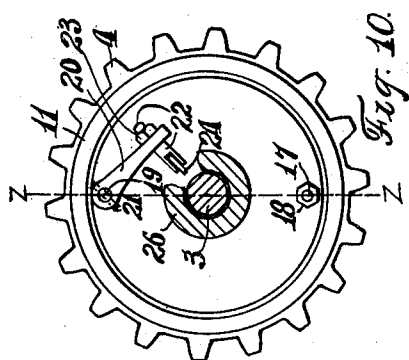


Fig. 10.

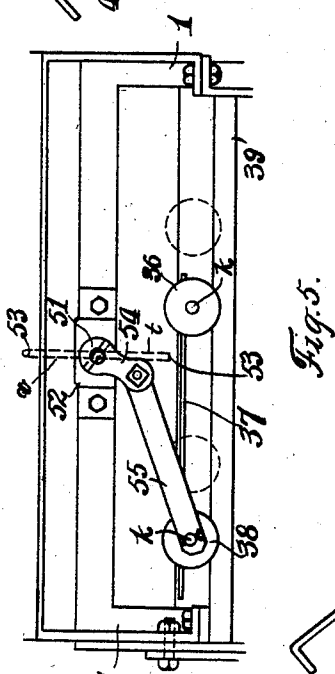


Fig. 5.

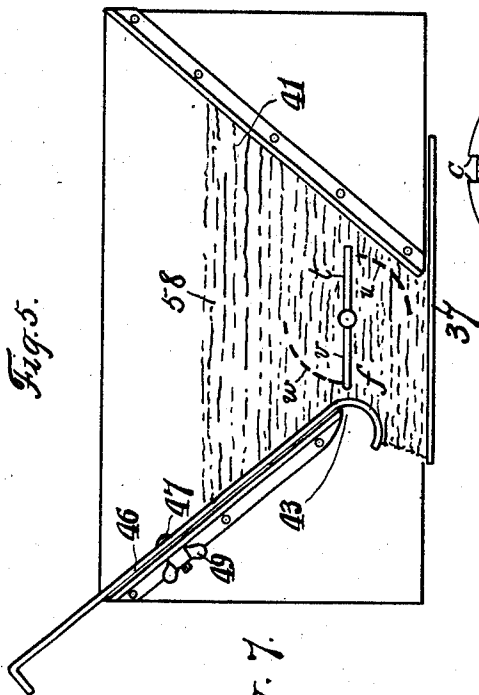


Fig. 7.

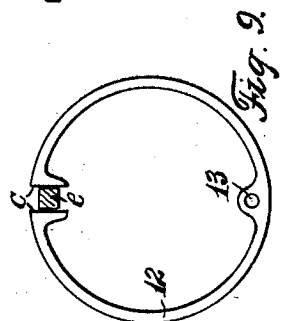


Fig. 9.

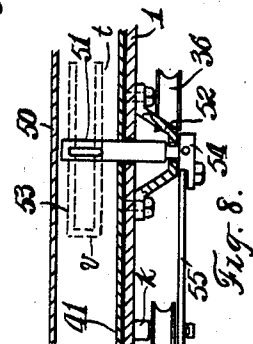


Fig. 8.

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UNITED STATES PATENT OFFICE.

HENRY POCOCK, OF LONDON, ONTARIO, CANADA.

CONCRETE-MIXER.

1,005,302.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed June 16, 1910. Serial No. 567,343.

To all whom it may concern:

Be it known that I, HENRY POCOCK, a subject of the King of Great Britain, and a resident of the city of London, in the county of Middlesex, in the Province of Ontario, Canada, have invented a new and useful Concrete-Mixer, of which the following is a specification.

This invention relates to a machine for automatically mixing or uniting into one body or mass broken stone, gravel, and sand with cement. And it consists of the improved construction and novel combination of parts of the same as will be hereinafter first fully set forth and described and then pointed out in the claim, reference being had to the accompanying drawings forming part of this specification, wherein—

Figure 1 is a side view of a machine embodying my invention. In this view the cover of the carriage wheels and pitman are removed. Fig. 2 is a plan view of an end of the device shown in Fig. 1. In this view about one half of the upper and lower shafts and attachments are shown. Fig. 3 is an end view of the device. Fig. 4 is a cross sectional view on the line, *x, x*, of Fig. 1. In this view the covers for the carriage wheels and pitman are shown and the cement agitator is removed. Fig. 5 is a detail side view of the cement agitator and its operating mechanism looking at the machine from the opposite side to that shown in Fig. 1. Fig. 6 is a detail side view of the sand hopper. In this view the front side of the machine is removed and the partition is shown. Fig. 7 is a detail side view of the cement hopper looking at it from the partition. Fig. 8 is a detail plan view partly in section of a portion of the cement agitator, shown in Fig. 5. Fig. 9 is an enlarged detail side view of the friction ring clutch, and of the square portion of its operating arm. Fig. 10 is an enlarged detail sectional view of the shaft and attachment partly cut away, and an enlarged view of the toothed wheel, and attachments on the line *y, y*, of Fig. 3. Fig. 11 is an enlarged detail central sectional view of the toothed wheel, the ring clutch and its holding and operating mechanism on the line *z, z*, of Fig. 10. In this view the shaft and attachments are not shown.

In the accompanying drawings, the numeral 1 indicates the main frame, in bearings 2 of which the main shaft 3 revolves,

and to either end, *a*, of said main shaft 3, a crank or pulley (not shown) may be attached to operate said shaft 3; or said shaft 3 may be operated by a chain belt (not shown) passing over the chain or sprocket wheel 4 revolving perfectly free on said shaft 3, as will be hereinafter described.

5 indicates collars each held by a set screw 6 on the shaft 3, one on the outer side of each of the bearings 2, for the purpose of holding said shaft 3 in place.

7 indicates a beveled toothed pinion rigidly secured to the shaft 3, and said beveled toothed pinion 7 engages with a beveled toothed wheel, 8, rigidly secured on the end of the shaft 8, for operating the latter, and to this shaft 8 the inclined mixing blades 9 are secured, making the shaft 8 a mixing shaft; and 10 are bearings on the main frame 1 and on the mixing frame 45 in which bearings 10 said mixing shaft 8 revolves. On said shaft 3, the chain or sprocket wheel 4 revolves perfectly free, as before described, and on the side of this chain wheel 4 an annular rim 11 is rigidly mounted, as shown in Figs. 10 and 11.

12 indicates a spring clutch which is open at *c*, and which is provided with the bolt hole 13 as shown in Fig. 9, and this spring clutch 12 is held in the annular rim 11, as shown in Fig. 11.

14 indicates a hub rigidly secured to the shaft 3, and provided with the side plate 15, in which side plate 15 the holes 16 and, *d*, are formed, and this hub 14 is secured to the spring clutch 12, by the bolt 17 provided with the nut 18, which bolt 17 extends through the bolt hole 16 in the side plate 15 and into the bolt hole 13 of the spring clutch 12.

19 indicates an arm extending through the bolt hole, *d*, of the side plate 15, and the inner end, *e*, of said arm 19 is formed angular or square and is fitted between the open ends, *c*, of the spring clutch 12 as shown in Figs. 9 and 11. To the outer end of this arm 19 a connecting bar 20 is secured by the pin 21, as shown in Fig. 10.

22 indicates a holder secured in the connecting bar 20 by the nut 23 and to the lower end of this holder 22 an antifriction wheel 24 is secured to revolve perfectly free.

25 indicates an inclined plane or portion of a collar 26, which collar 26 revolves with and reciprocates on the shaft 3 and is provided with a groove, *g*, and is operated by

the lever 27, all as shown in Figs. 2 and 3. This lever 27 clasps said collar 26, at the groove, *g*, and said lever 27 is pivotally secured to the bearing 2 by the pivot, *n*, as shown in Fig. 2.

28 indicates a counter shaft which revolves perfectly free in the bearings 29 mounted on the frame 1. 30 indicates a chain or sprocket wheel and 31 part of a toothed clutch secured together and both revolving perfectly free on said counter shaft 28. 32 is the other portion of the toothed clutch mounted to reciprocate slightly on and to turn with the counter shaft 28. The sprocket wheel 30, and part 31 of the toothed clutch, are operated on the counter shaft 28 by a chain belt, *h*, passing over the sprocket wheels 30 and, *i*, the latter being secured on the shaft 3, so that as said shaft 3 is operated the sprocket 30 and attachments are also operated.

33 indicates a lever extending in the groove, *j*, of the reciprocating portion 32 of the toothed clutch, and said lever 33 is pivotally secured to the main frame 1, by the pivot, *o*, as shown in Fig. 2.

p, is an arm loosely pivoted by the pivot, *r*, on the lever 33, the notch, *s*, of which engages with the adjacent bearing 29 to hold the toothed clutch 31 and 32 in contact when required.

34 indicates a crank secured on each end of the counter shaft 28 to hold the latter in place and connect the end thereof with a pitman.

35 indicates pitmen which pivotally connect the cranks 34 with the axles, *k*, of the rear carriage wheels 36, shown in Fig. 1.

37 is the carriage mounted on the axles, *k*, and the latter are mounted in the back wheels 36 and the front wheels 38, which wheels 36 and 38 run on the tracks 39 secured to the main frame 1.

40 indicates the sand hopper and 41 the cement hopper rigidly secured to the main frame 1, and each provided with a lower front opening 42 and 43, respectively.

44 indicates a movable gate in the end of the sand hopper 40, and this gate 44 is movable and used to limit the amount of sand passing out of the opening 42 into the mixer 45; and 46 indicates a movable gate provided with a curved end, *f*, in the end of the cement hopper 41, and this gate 46 is movable and used to limit the amount of cement passing out through the opening 43 into the mixer 45; and the movable gates 44 and 46 are held at the position to which they are adjusted by the bolts 47 passing through these movable gates 44 and 46 and through elongated slots 48 formed in the ends 40 and 41 of these hoppers, and these bolts are engaged with by thumb nuts 49 as shown in Figs. 6 and 7.

The object of curving or rounding the

portion, *f*, of the movable gate 46 in the end of the cement hopper 41, is to smooth down the lumpy portions of the cement, and when said cement 58 is thus smoothed down it more easily and in even quantities passes out through the opening 43 in front of the cement hopper 41.

50 is a partition between the hoppers 40 and 41, and on one side of this partition is the sand 57 and on the other side is the cement 58.

51 indicates a shaft mounted in the side 41 of the cement hopper and in the bearing 52, secured to the frame 1.

53 is an agitator mounted on one end of the shaft 51 in the cement hopper 41, and 54 is a crank on the other end of the shaft 51 outside of said cement hopper 41, and 55 is a pitman which connects the crank 54 with the axle, *k*, of the front wheels 38 of the carriage 37 for the purpose which will be hereinafter set forth. As the lower part, *t*, of this agitator 53 moves downward and forward as shown by dotted line, *u*, in Fig. 7, with the forward movement of the carriage 37, this lower part, *t*, of the agitator 53 carries or forces the cement 58 out through the opening 43 in the cement hopper 41. Again as the upper part, *v*, of the agitator 53 moves downward and forward, as shown by dotted line, *w*, with the backward movement of the carriage 37, this upper part, *v*, of the agitator 53 carries the cement 58 down in front of it to fill the opening 43 in the cement hopper 41.

56 indicates covers which are secured to the frames of the hoppers 40 and 41, as shown in Fig. 4, to cover the wheels of the carriage 37 and the adjacent operative parts.

The operation is as follows:—The sand 57 is placed in the hopper 40 and the cement 58 is placed in the hopper 41, as shown in Figs. 6 and 7, and in both cases the sand 57 and cement 58 rest on the carriage 37 and are separated by the partition 50, the latter being secured to the ends of said hoppers 40 and 41 with the lower end resting adjacent to said carriage 37. It is obvious that the machine may be operated either by hand or by power, the operation thereof in either event being effected by applying the source of motion to either end *a* of the main shaft 3. As the shaft 3 is operated the beveled toothed pinion 7, chain or sprocket wheel 4 and attachment, and chain wheel, *i*, are also operated; and by a chain belt, *h*, passing over the chain wheel, *i*, secured on the main shaft 3, and over the chain wheel 30 on the counter shaft 28, said chain wheel 30, and part 31 of said tooth clutch revolve perfectly free on said counter shaft 28. And as the other part 32 of the toothed clutch is engaged with the part 31 by the lever 33, the toothed clutch 31 and 32 revolve as well as the counter shaft 28, and as the latter revolves

it operates the cranks 34 on the outer ends of this counter shaft 28, and these cranks 34 being connected to the axles, *k*, of the rear wheels 36 of the carriage 37, the latter is reciprocated back and forth according to the throw or length of the cranks 34. And the amount of sand 57 and cement 58 carried forward by the carriage 37 is regulated by the distance that the movable gate 44, and curved portion, *f*, of the movable gate 46 are above the carriage 37, so that any proportion of sand 57 or cement 58 may be given according to the distance these movable gates 44 and 46 are adjusted above said carriage 37, which movable gates 44 and 46 are held at the position to which they are adjusted by the bolts 47 passing through said movable gates 44 and 46 and through the elongated slots 48 in the ends 40 and 41 of the hoppers and are held at the point to which they are adjusted by tightening the thumb nuts 49. The carriage 37 reciprocates, so that when moving forward it takes the proper portion of cement and sand with it, and when moving backward the proportional amount of cement and sand falls through the openings 42 and 43 and over the end of the carriage 37 into the mixer or mixing trough 45. In going backward the carriage passes under the adjacent portion of the hopper, which abuts against said carriage, and as the carriage 37 passes under this portion of the hopper on moving backward the sand and cement on the carriage falls over the front end thereof through the openings 42 and 43 and into the mixer 45. The curved portion, *f*, of the movable portion 46 is to smooth down the lumpy portions of cement and to facilitate the movement of the cement 58 when the carriage 37 is moving forward, and when moving backward this curved portion, *f*, and the end of the hopper cause every portion of cement to fall off the front end of the carriage 37 into the mixer 45. And as the carriage 37 moves forward and backward the pitman 55 operates the crank 54 and the agitator 53 connected thereto, this operates the agitator 53 as before described. Again as the shaft 3 is operated, the beveled toothed pinion 7 is also operated, and this beveled toothed pinion 7 engaging with the beveled toothed wheel, *b*, meshing therewith, the shaft 8 secured to said beveled toothed wheel, *b*, and the inclined blades 9 secured to said shaft 8 are also operated. This operates the shaft 8 and blades 9 in the mixer 45 where the sand 57 and cement 58 are automatically mixed or

united into one body or mass, and these blades are so constructed or inclined that they discharge this mass into a receptacle (not shown) placed to receive it at the end, *m*, of the mixer 45.

In the annexed specification sand has been the principal ingredient named, with the cement, but broken stone, or gravel, or any other suitable ingredient may be used with the cement, or any combination of them with the sand and cement. And again a chain belt, *h*, is shown connecting the chain wheel, *i*, on the main shaft 3 with the sprocket wheel 30 on the counter shaft 28, but gearing or other device may be used instead of said chain belt and chain and sprocket wheels if desired. So that a machine of the class described, not only mixes or unites into one body or mass sand with cement, but mixes sand with cement in any proportions required, and at the same time, the machine may be readily, easily and instantly set in or out of gear for operation or not as required, and a machine is provided that will be simple, strong and durable in construction and efficient in practical use.

Having thus described my invention, I claim:—

In a feeding device, a hopper, a reciprocating carriage abutting against the lower end of said hopper, axles under the carriage, front and rear wheels upon said axles, a partition dividing said hopper into two compartments, each of said compartments having an opening in one end thereof, an adjustably movable gate in said end of each of said compartments provided with the opening, one of said gates having an outwardly curved bottom portion adapted to be contacted by the contents of its respective compartment during the feeding operation through said opening, a shaft positioned through the hopper, an agitator mounted upon one end of the shaft within a compartment of the hopper, a crank upon the other end of said shaft outside of said hopper, a pitman connecting said crank and front axle of the carriage, and opposite covers secured to the hoppers and extending over said wheels and pitman.

In testimony whereof, I have signed in the presence of the two undersigned witnesses.

HENRY POCOCK.

Witnesses:

P. J. EDMUNDS,
S. HARDY.