H. S. SCOTT & M. L. DILGARD.

CONCRETE MIXING MACHINE.

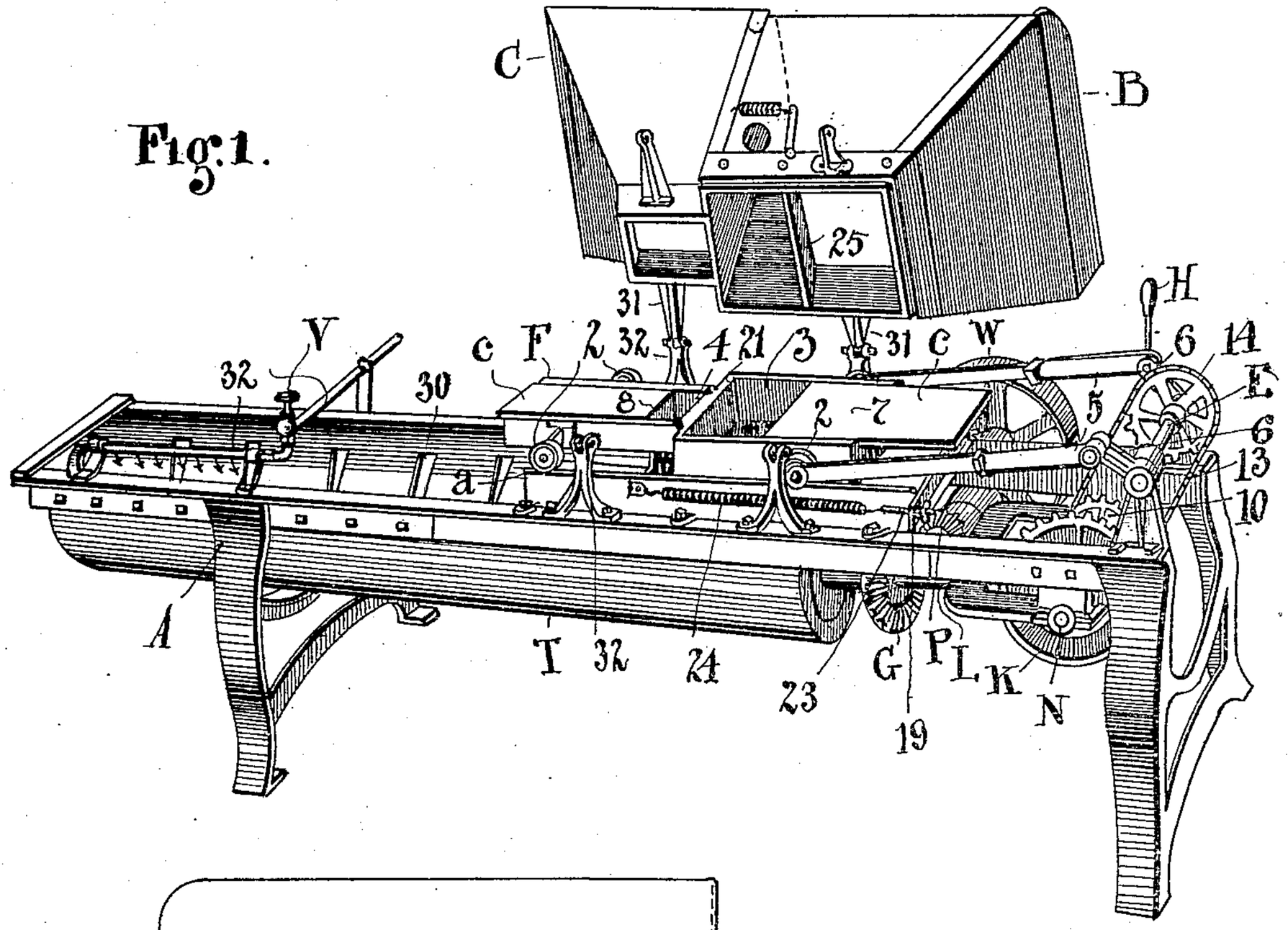
APPLICATION FILED JAN. 27, 1908.

931,657.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



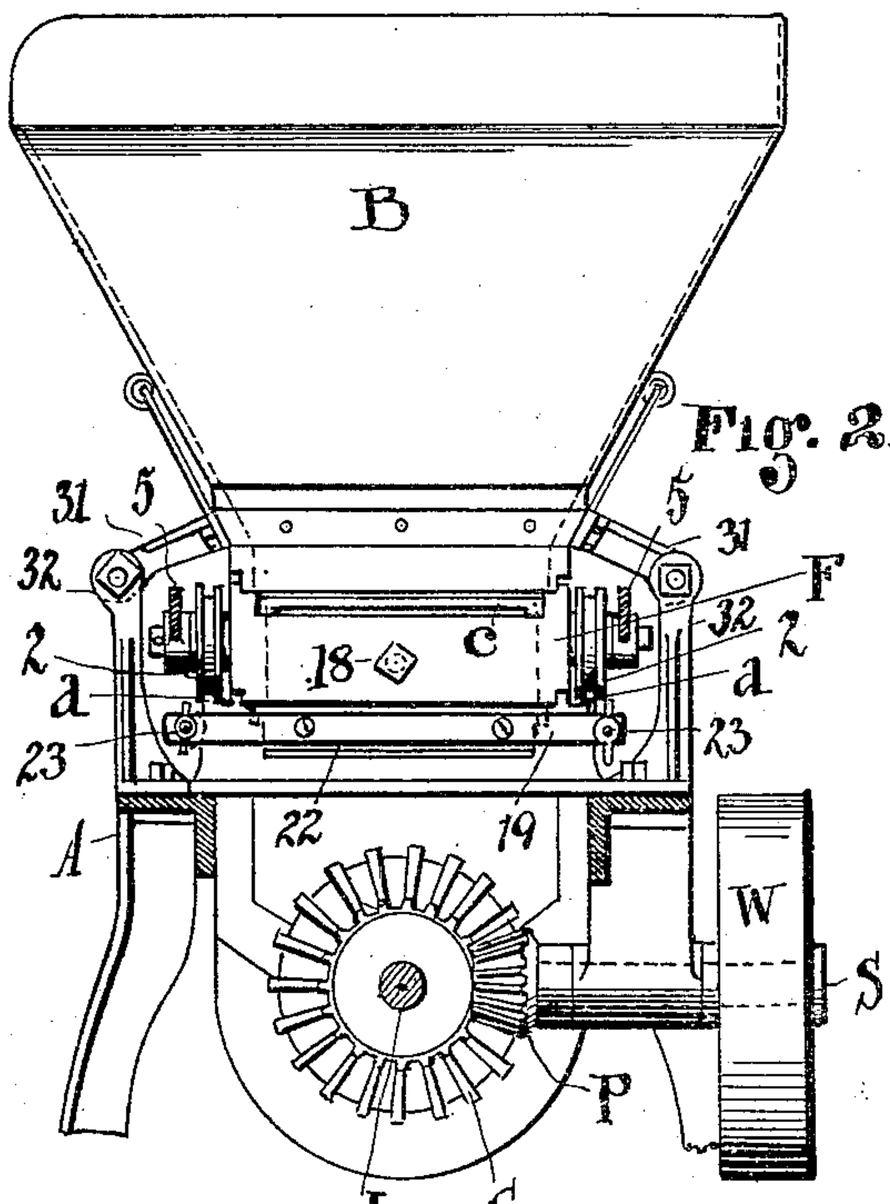
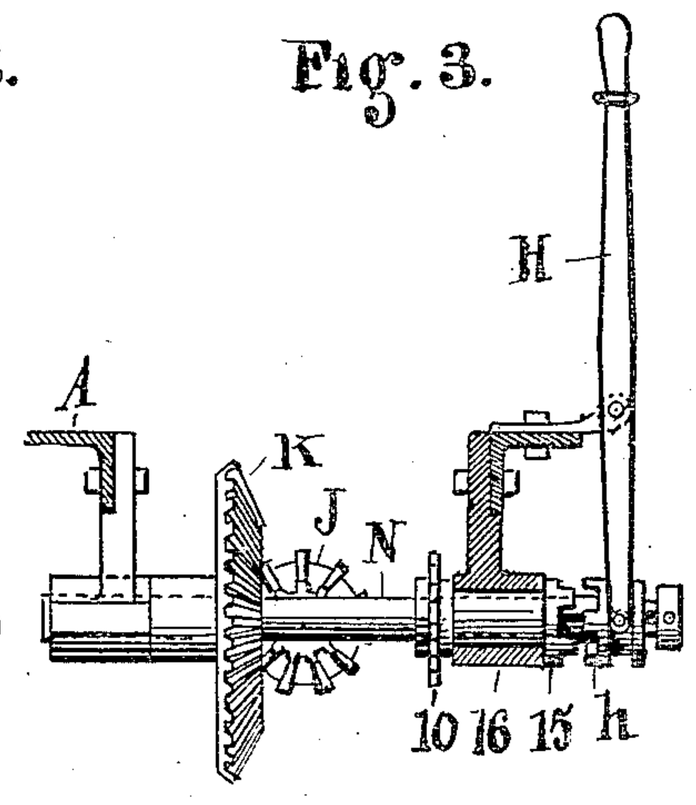


Fig. 2.

Fig. 3.



ATTEST

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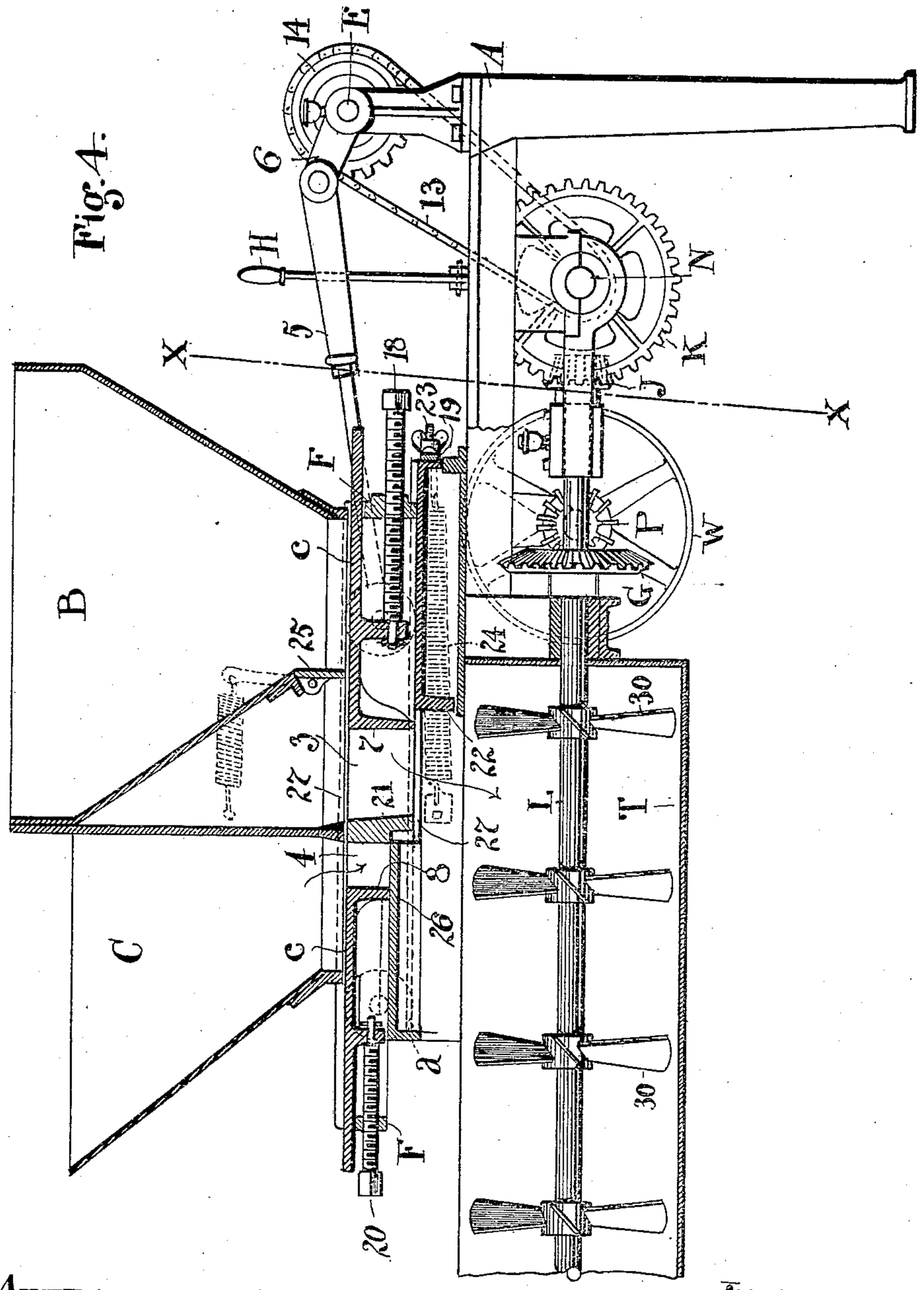
Fig. 4.



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UNITED STATES PATENT OFFICE.

HORATIO S. SCOTT AND MONTIS L. DILGARD, OF ASHLAND, OHIO, ASSIGNORS TO W. LANDIS, ALLEN THOMAS, AND U. S. SHELLY, ALL OF ASHLAND, OHIO.

CONCRETE-MIXING MACHINE.

No. 931,657. Specification of Letters Patent. Patented Aug. 17, 1909.

Application filed January 27, 1908. Serial No. 412,698.

To all whom it may concern:

Be it known that we, HORATIO S. SCOTT and MONTIS L. DILGARD, citizens of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Concrete-Mixing Machines, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to a new and useful improvement in concrete mixing machines, and the invention consists in the construction and combination of parts substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the machine with the hoppers raised and tilted and exposing the bottom construction thereof. Fig. 2 is a cross section of the machine corresponding substantially to line *x*—*x*, Fig. 4. Fig. 3 is an elevation of a lever and clutch and other parts adapted to control the feed to the machine. Fig. 4 is a longitudinal sectional elevation of the machine.

A represents the frame of the machine including the legs on which it stands.

B is the sand and gravel hopper and C the cement hopper, arranged side by side lengthwise of the machine and connected together in this instance as one member but having separate bottom openings and control through measuring or feed boxes or pockets 3 and 4 respectively. These boxes or pockets also constitute part of a slidable member or table F adapted to run lengthwise of the machine back and forth on rollers 2 supported on the sides thereof and adapted to ride on tracks *a* at the side. Said member has said pockets 3 and 4 of varying sizes to correspond to the respective materials, the percentage of cement being small as compared with the sand, and if there were a third ingredient a hopper could be provided therefor, also. The said table has said pockets beneath its top flat surface *c*, which serves as a closure for the hoppers as the same is reciprocated first beneath one hopper and then the other. As the said measuring pockets slide beneath the hoppers they are filled by gravity, and then as they return they are stroked off by the depending walls of the hopper, when they are carried along from over the bottoms or floors beneath the same and emptied into trough T.

The table F is operated by or through a pitman 5 on each side thereof connected with cranks 6 on the ends of transverse shaft E on one end of the machine, and said shaft is driven from a main or power driven shaft S, which carries a band wheel W, or its equivalent for applying power at one end, and a cone shaped pinion P at the other end. Said pinion meshes with a bevel gear G fixed on longitudinal mixing shaft L on which another pinion J meshes with a bevel gear K on transverse shaft N Fig. 3. This shaft, N, carries a sprocket wheel 10 on which there is a chain 13 engaged over sprocket wheel 14 on the said shaft E which operates the pitmen 5, and in this way, or by any equivalent or sufficient mechanism, power is conveyed to said pitmen to actuate the material measuring and feeding boxes 3 and 4. Hand lever H controls a clutch *h* which can be thrown into or out of engagement with clutch head 15 on the sleeve or hub of sprocket 10 which extends through the bearing 16 and clutch *h* is spindled to slide on shaft N, while wheel 10 is free thereon and only rotates when engaged by the clutch. The said measuring table F has a reciprocating action or movement within the throw of cranks 6 and pitmen 5, and the hoppers B and C feed successively through the openings in their bottom into said pockets 3 and 4 as above described. These can be enlarged or diminished in size according to the quantity of the material wanted, proportions often varying considerably according to the quality of the materials and the product wanted. To these ends each box is provided with an adjustable slide, 7 and 8, respectively, which narrow or enlarge their respective boxes according to the direction of adjustment. Thus, slide 7 in the said measuring box 3 is controlled by a set screw 18, and slide 8 in the cement box by screw 20. The proportions of the ensuing mixture will depend on these adjustments and an experienced operator can readily fix each feed what he wants at the time.

Sometimes it occurs that stones get caught between the wall 21 of the sand or gravel measuring box 3 and the corner of slidable bottom table 22 for the measuring box or pocket and which occurs on the outer stroke of pitmen 5. In such case something would

have to break or the machine stop, and to obviate these conditions I provide heavy springs 24 at the sides of said table and adjustably connected to end bar 19 on the table by thumb screw members —23— and which hold the same normally in right position but allow it to yield when a stone intervenes and afford the necessary accommodation. A like accommodation for the bottom of the sand and gravel hopper is provided in a spring pressed wing or plate 25, Fig. 4 at one edge of hopper B to relieve as against the angle of wall 7.

A bottom table 26 receives the cement beneath measuring box 4, and the cement is dropped from said box when the measuring table carrying said boxes has passed far enough to the right, Fig. 4, to cut off the cement from hopper C and to empty the box when it is carried to dumping position beneath the blank chamber or space 27 between the two hoppers. On the reverse movement the sand is dumped at the same place and after the flow to its box 3 has been cut off, as in Fig. 4. From these tables 22 and 26, respectively, the materials discharge into the mixing trough T, into which shaft L carries stirring or mixing blades 30. Discharge is from the outer end of this trough, but before discharge occurs a suitable amount of moisture can be added to the mixture through perforated pipes 32, and the mixture is dry up to this point. The amount of water is regulated by valve V.

By this machine we can turn out material fast or slow according to the power applied and the mixture wanted for immediate manufacture into blocks and the like.

Hoppers B and C are jointly supported by side arms —31— which have bolt connections with forked uprights or standards —32— on frame A. Removal of the bolts on either side of the machine permit tilting of the hoppers as a unit and as seen in Fig. 1. This is of advantage in giving access to the interior.

It is obvious that this machine may be used for mixing many different kinds of materials and is not limited to concrete, though so claimed and described because it is especially valuable in this service.

What we claim is:—

1. In a mixing machine, a main frame open at its top and a mixing trough arranged lengthwise between the sides of said frame, a plurality of hoppers supported from said main frame over one end of said trough and parallel tracks on the top of said main frame above said trough, in combination with a measuring box having a measuring pocket for each of said hoppers and guide rollers supporting said box on said tracks, the said box having flat top portions at its ends apart from said pockets constituting the immediate bottoms of said hoppers, rotatable mixing mechanism in said trough to mix the material, and power connections to said mixing mechanism and to said measuring-box adapted to reciprocate the box and to rotate said mixing mechanism respectively.

2. In a machine, a set of hoppers having each an opening in its bottom, a main frame supporting said hoppers and provided with tracks on its top lengthwise thereof, a measuring box having pockets to measure the material corresponding to the bottoms of said hoppers and adapted to travel back and forth upon said tracks, said measuring box having bottoms for the said hoppers supported on its top, in combination with a mixing trough lengthwise in said main frame beneath said measuring box and a table supported on said frame constituting a bottom for said measuring box, a shaft provided with stirring blades arranged in said mixing trough, and power connections operatively engaged with said measuring box and said shaft, respectively, whereby the said measuring box is reciprocated and the said shaft and mixing blades are rotated simultaneously from the same source of power and the material is uniformly fed and mixed.

3. In a mixing machine, a main frame, a mixing trough longitudinally therein and having an open top and its sides fixed to said main frame, a pair of tracks on said main frame above the top thereof and extending over a portion of said trough along the edges thereof, hoppers for different materials supported from said main frame over said trough and adapted to discharge between said tracks, in combination with a measuring box adapted to be reciprocated upon said tracks and occupying a space between said trough and said hoppers, bottom portions for said hoppers upon the top of said measuring box and measuring pockets in the middle of said measuring box at the inner ends of said bottom portions, a table between said tracks supported on said main frame providing bottoms for said pockets, stirring mechanism for the material in said trough and a power shaft and means connecting said stirring mechanism and said measuring box operatively therewith.

4. In a mixing machine, a main frame and posts thereon, a plurality of hoppers supported on said posts above said frame, tracks between said frame and hoppers, a reciprocating measuring device having boxes of different sizes adapted to come beneath the bottom of said hoppers and supported on said tracks, means to vary the size of each of said boxes according to the amount of material desired at the time from each, and separate bottoms for said boxes supported from the main frame and one of said bottoms adapted to yield under spring tension to avoid breakage, in combination with a mixer for the material open to both said boxes alternately,

and jointly operated means for actuating said mixer and said reciprocating table respectively.

5. In a mixing machine, hoppers to receive the materials to be mixed, a reciprocating measuring box beneath said hoppers having measuring pockets, a table beneath one of said pockets and springs engaged therewith to hold the same in normal working position and adapted to yield to prevent breakage in case an obstruction lodges between the edge of said bottom and the rigid edge of the said box, and a mixing trough beneath said parts into which the material discharges from said measuring boxes.

6. In a concrete mixing machine, a stationary mixing trough and a stationary hopper over the same having an opening in its bottom, a part provided with a measuring pocket for the material slidably mounted between said hopper and said mixing trough, and a pivoted spring pressed stroke-off for the material at the bottom of said hopper above said pocket and a slidable table forming a bottom for said pocket.

7. In a concrete mixing machine, a mixing trough and a plurality of hoppers over said trough, in combination with a table slidably mounted beneath said hoppers and over said trough and provided with pockets to measure the materials, and stroke-offs for said materials at the bottoms of said hoppers, one of said stroke-offs being pivotally supported and provided with a spring resistance and a slidable table beneath one of said pockets forming a bottom therefor.

In testimony whereof we sign this specification in the presence of two witnesses.

HORATIO S. SCOTT.
MONTIS L. DILGARD.

Witnesses:
J. C. SLOAN,
ANNA HIFFNER.