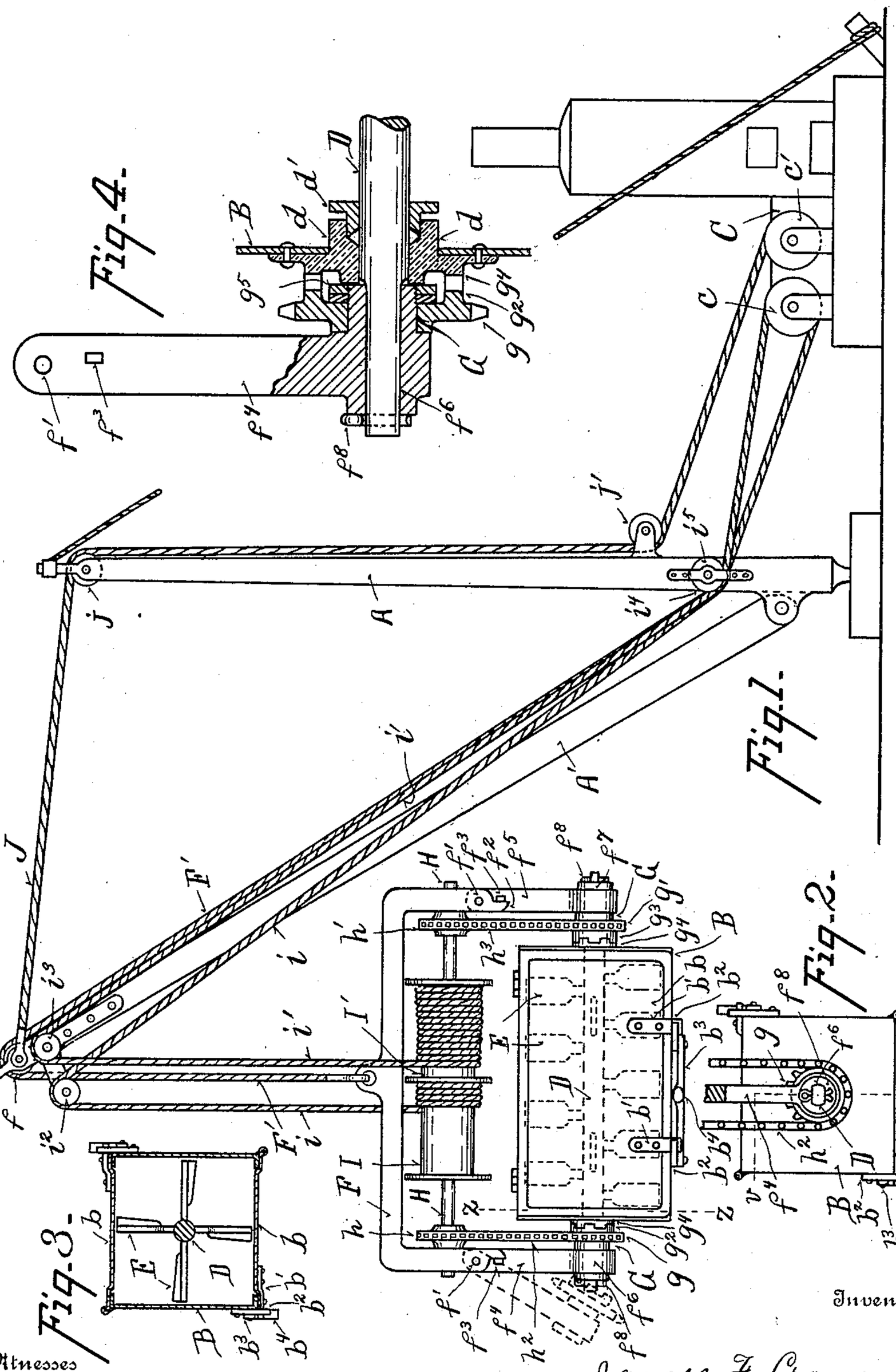
No. 886,680. PATENTED MAY 5, 1908.

J. F. CROWE.

CONCRETE MIXER.

APPLICATION FILED MAR. 18, 1907.



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CONCRETE-MIXER.

No. 886,680. Specification of Letters Patent. Patented May 5, 1908.

Application filed March 18, 1907. Serial No, 362,810.

To all whom it may concern:

Be it known that I, JAMES F. CROWE, a citizen of the United States, residing at Burnside, in the county of Pulaski and State of Kentucky, have invented certain new and useful Improvements in Concrete-Mixers, of which the following is a specification.

My invention relates to improvements in concrete mixers.

One of its objects is to provide a mixer which can be conveniently moved from place to place to receive the different ingredients and to deposit the concrete when mixed at the place required.

Another object is to provide simple and reliable means for effectually mixing the ingredients.

Another object is to provide a mixer in which the mixing operation is effected during the operation of transporting the concrete to the place where it is to be deposited.

Another object is to provide a more simple and less expensive mixer.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which:

Figure 1 is a side elevation of my improved mixer. Fig. 2 is an end view of the mixing chamber and its supporting and driving mechanism. Fig. 3 is a section through the mixing chamber on line *z z* of Fig. 1. Fig. 4 is a sectional detail taken through the mixing chamber supporting and driving mechanism on line *v v* of Fig. 2.

In the accompanying drawings A represents the mast and A′ the boom of a crane or derrick, which serves to support and convey the mixing chamber B to the various positions required, the movements being effected by means of an engine or motor C driving a plurality of drums *c c′*.

The mixing chamber B consists preferably of a rectangular sheet metal shell, and is preferably provided with doors *b* at opposite sides. The doors *b* are adapted to be held closed by appropriate latch mechanism, which can be conveniently released to discharge the concrete. The latch mechanism shown comprises lugs *b′* carried by the doors, latches b^2 hinged to the shell and adapted to engage lugs *b′*, and a strap b^3 pivoted to both latches and provided with a handle b^4 by means of which both latches are simultaneously shifted to latch or release the door.

D represents a shaft or rod passing axially through the chamber B, and upon which the chamber B journals by means of journal boxes *d*, which are attached to the sheet metal shell and preferably provided with packing glands *d′* to prevent the concrete getting into the bearings.

E represents a series of mixing blades carried within chamber B by shaft D, the greater number of blades being preferably arranged to stand vertically so as not to interfere with the introduction of the materials.

F represents a yoke frame suspended by means of a cable F′ which passes over a sheave *f* at the free end of the boom A′. One end and preferably both ends f^4 f^5 of the yoke F are jointed at *f′* so that the lower ends can be swung outwardly as indicated in dotted line at the left of Fig. 1.

f^2 represents fingers and f^3 lugs or stops which prevent the pivoted lower ends f^4 f^5 of the yoke from swinging in the opposite direction.

The ends of shaft D are secured in eyes f^6 f^7 in the ends of the yoke pieces f^4 f^5 in such manner as to prevent the shaft from turning relative to the yoke, and also preferably so that by swinging said pieces outwardly the shaft may be freed therefrom. As shown the ends of the shaft D are flattened on opposite sides and are secured in correspondingly shaped eyes in pieces f^4 f^5; keys f^8 passing through the ends of the shaft to lock the parts in place.

G represent hubs projecting inwardly from the ends of arms f^4 f^5 which hubs serve as journals for sprocket wheels *g g′*. Projecting from the face of sprocket wheels *g g′* are clutch members g^2 g^3 which engage clutch members g^4 projecting from journal boxes *d* of the chamber B.

H represents a shaft journaled in the upper portion of yoke F and provided with sprocket wheels *h h′* which by means of sprocket chains h^2 h^3 serve to drive the sprocket wheels *g g′* and through clutch members g^2 g^3 g^4 to drive or rotate the chamber B. Sprocket wheels *g g′* are held in place on the hubs G by lock nuts g^5. Shaft H also carries two drums I I′, about which are wound in reverse directions the ends of cables *i i′*. Cables *i i′* pass thence over the sheaves

i^2 i^3 on the boom and sheaves i^4 i^5 on the mast, and their opposite ends are similarly wound on drums *c*. Cable F′ is also preferably wound on a drum of the same diameter carried on the same shaft as drum *c*. Cable F′ may however if desired be wound upon an independently controlled drum on a separate shaft. A cable J is attached at one end to the free end of boom A′ and passes thence over sheaves *j j′* and thence to drum *c′*.

The operation is as follows; the chamber B being adjusted to the desired height to receive the materials and so as to swing free from the ground, and the upper door *b* opened, is shifted successively to different positions to receive the sand, cement, crushed stone, and water, or other ingredients. Then the door *b* is closed and latched and drum *c*, and also if desired drum *c′* rotated to elevate the chamber B, the cables *i i′* causing shaft H to rotate, which in turn rotates chamber B upon its axle D through sprocket wheels *h h′ g g′* and clutch members g^2 g^3 g^4, which serves to mix the ingredients in chamber B. Chamber B is then shifted and lowered over the place where the concrete is to be deposited, the lowering of chamber B causing said chamber to rotate in the opposite direction, and thus to further mix the concrete. The latch of the lower door is then released and the concrete deposited. Where cable F′ is wound upon a separate and independently controlled drum, the chamber B may be rotated by rotating the drum *c* without elevating the chamber if so desired.

The mechanism herein illustrated and described is capable of considerable modification without departing from the principle of my invention, the scope of which will be defined by the claims.

Having described my invention, what I claim is:

1. In a mechanism of the character indicated, a derrick mast and boom, a yoke frame suspended by a cable passing over a pulley at the free end of said boom, whereby the yoke frame is adapted to be elevated and lowered, a drum carried by and journaled to said yoke, separate cables passing over pulleys at the free end of said boom and wound in opposite directions on said drum, a mixing chamber journaling upon a non-rotating shaft carried by said yoke, sprocket wheels at opposite ends of said drum shaft adapted to be driven by the winding and unwinding of the cables wound on said drum, sprocket wheels loosely journaling on said non-rotating shaft and adapted to rotate the mixing chamber, and sprocket chains transmitting motion from said drum shaft to said mixing chamber.

2. In a mechanism of the character indicated, in combination with a derrick mast and boom, a yoke frame comprising a suspended main or middle section and two hinged downwardly projecting end sections, a drum journaled to said middle section and provided with actuating cables oppositely wound thereon, a non-rotating shaft detachably locked to said hinged yoke sections a mixing chamber journaled upon said non-rotating shaft, sprocket wheels loosely journaled upon said non-rotating shaft, and clutched to said mixing chamber, sprocket wheels carried by said drum shaft and adapted to be driven by the winding and unwinding of said cables upon said drum, and sprocket chains transmitting motion from said drum shaft to said mixing chamber.

3. In a mechanism of the character indicated, a derrick mast and boom, pulleys carried by said boom, a yoke frame suspended from said boom by a cable passing over one of said pulleys carried by said boom to raise and lower said yoke frame, a drum journaled to said yoke frame and adapted to be rotated in opposite directions by means of separate cables oppositely wound on said drum and passing over pulleys carried by said boom, a non-rotating shaft locked to said yoke frame, a mixing chamber journaled on said non-rotating shaft, and mechanism transmitting motion from said drum to said mixing chamber to rotate the same.

4. In a mechanism of the character indicated, a derrick mast and boom, pulleys carried by said boom, a yoke frame suspended from the end of said boom by a cable passing over one of said pulleys at the end of said boom to raise and lower said yoke frame, a drum journaled to said yoke frame and adapted to be rotated in opposite directions by means of separate cables oppositely wound on said drum and passing over pulleys at the end of said boom, a non-rotating shaft armed with mixer blades locked to said yoke frame, a mixing chamber journaled on said non-rotating shaft, and mechanism transmitting motion from said drum to said mixing chamber to rotate the same.

5. In a mechanism of the character indicated, power driven suspending and transporting mechanism, a yoke frame suspended thereby, one of the arms of said yoke frame being pivotally connected to the back thereof an axle carried rigidly by the extended ends of said yoke frame, a mixing chamber journaled upon said axle, a clutch member carried by said chamber, a motor, and a clutch member actuated by said motor and adapted to engage the clutch member on said chamber to rotate said chamber.

In testimony whereof I have affixed my signature in presence of two witnesses.

JAMES F. CROWE.

Witnesses:
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GEORGE T. HORINE.