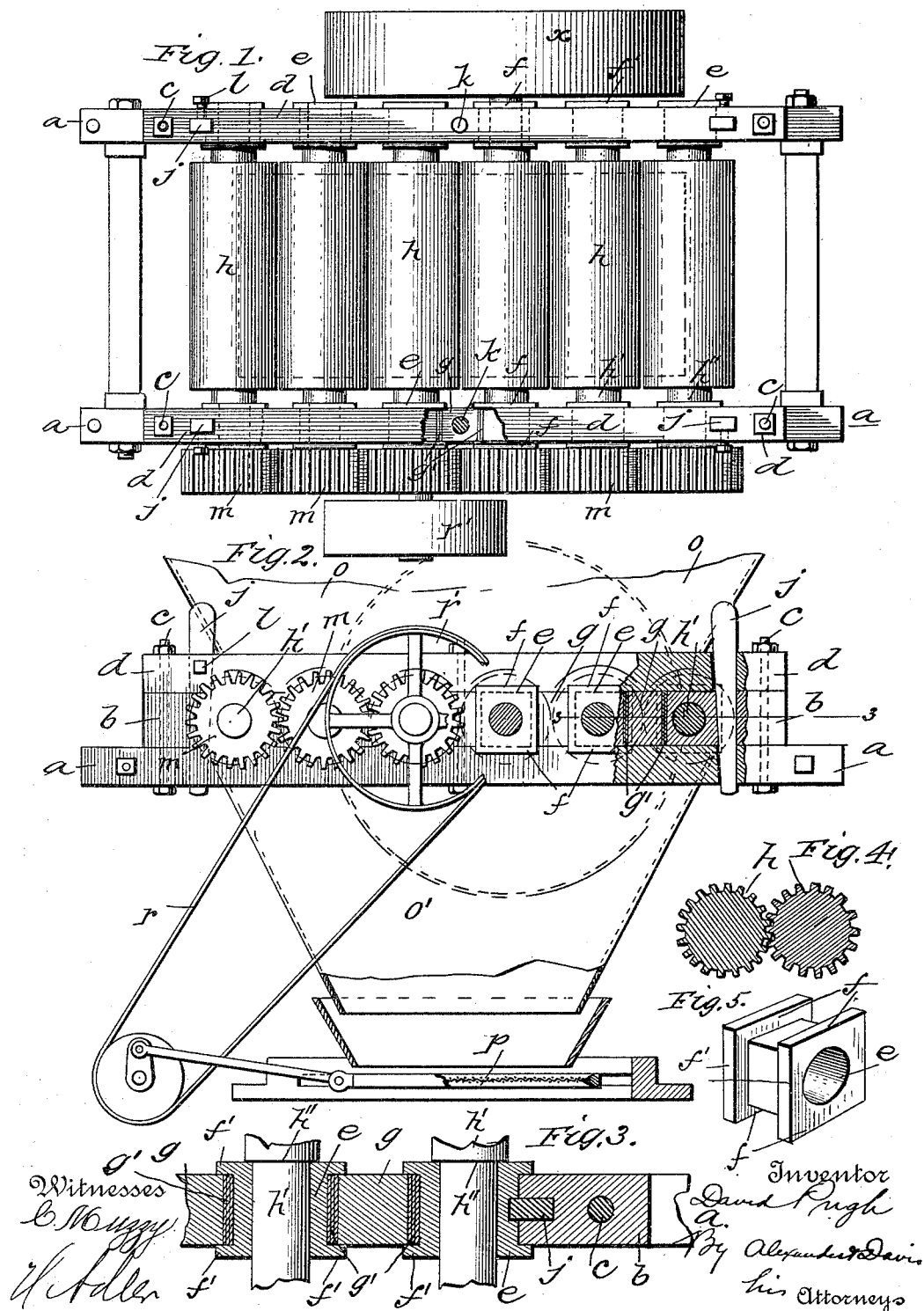


(No Model.)

D. PUGH.
GLASS BATCH MIXER.

No. 491,445.

Patented Feb. 7, 1893.



UNITED STATES PATENT OFFICE.

DAVID PUGH, OF CUMBERLAND, MARYLAND.

GLASS-BATCH MIXER.

SPECIFICATION forming part of Letters Patent No. 491,445, dated February 7, 1893.

Application filed September 10, 1892. Serial No. 445,499. (No model.)

To all whom it may concern:

Be it known that I, DAVID PUGH, a citizen of the United States, residing at Cumberland, in the county of Allegany and State of Maryland, have invented certain new and useful Improvements in Glass-Batch Mixers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in glass batch mixers; and it has for its object to provide a device of simple construction which will thoroughly and uniformly pulverize and mix the ingredients which make up the glass-batch.

A further object of the invention is to provide means whereby the pulverizing and mixing rolls may be adjusted to or from each other as desired, to provide for taking up the wear of the rolls, and to provide for mixing fine or coarse material.

The invention consists in certain novel combination and arrangement of parts as are more fully hereinafter described.

In the drawings Figure 1 is a plan view of my device; Fig. 2 is a side elevation, parts being broken away to clearly show the construction; Fig. 3, is a horizontal section taken on line 3—3 of Fig.—2; Fig.—4, is a cross section of two rolls showing a modification, and Fig. 5—is a detail perspective view of one of the journal boxes.

Referring to the drawings, *a a* designate two longitudinal parallel beams upon which the rolls are mounted. Above these beams and parallel therewith, are secured by means of the end blocks *b b* and bolts *c*, the beams *d*, said bolts passing down through the beams and blocks as shown.

Between each pair of beams *a* and *d* are secured the journal blocks *e*. These journal blocks are wider than the beams and are provided with grooves or channels in their upper and lower sides in which the beams fit. The flanges *f* formed on the journal blocks by these grooves embrace the beams on both sides thereof, as shown, and prevent any endwise displacement of the journals.

In order to secure the journal blocks the proper distances apart I have provided spacing blocks *g*, and in order that these spacing blocks may be properly secured between the

beams *a* and *d* and the journal blocks, I have provided the journal blocks with vertical grooves or channels on their sides as shown. The flanges *f'* formed by these grooves or channels embrace the sides of the blocks *g*, and prevent any displacement of said blocks.

In the drawings I have illustrated a series of six rolls *h*, but as is evident as many as are found desirable may be employed. The shafts *h'* of these rolls are reduced in diameter near their outer ends, and the shoulders *h''* thus formed abut against the inner sides of the journal blocks, the reduced portion of the shafts extending through the journal blocks, as clearly shown in Fig. 4.

In order to provide for the taking up of the wear of the rolls, and the adjustment of the rolls toward and from each other, I place between the spacing blocks and the journal blocks, thin removable spacing-strips *g'* which fit the vertical channels formed in the journal blocks and are held therein by the flanges *f'* of said journal blocks, I have shown keys or wedges *j* at each end of both sets of journal boxes for tightening them up, and for moving said boxes and their rolls side-wise when the spacing strips are removed and the rolls are to be adjusted closer together. These keys are passed down through recesses formed in the beams *d* and *a*, and their inclined faces bear on the outer sides of the outermost journal-box.

As shown in Figs. 1 and 2, the spacing blocks *g* between the two center rolls are secured rigidly in place by the removable bolts *k* which pass down through the beams *d* and *a*, and through the blocks *g*. The object of securing the center spacing blocks stationarily is, that the rolls on either side thereof and their journal bearings may be adjusted toward and from the center; and also that the cam-action of one key will not be against the key at the other end of the line of boxes but against the central stop. I have provided set-screws *l* tapped through the beams *d*, their inner ends bearing on the sides of the keys *j* and securing them in their adjusted positions. At one side of the machine the shafts of the rolls are extended beyond the outer sides of the journal boxes, and are provided with deep-toothed gear-wheels *m*. The teeth of these wheels are of such depth as to

allow the necessary lateral movement of the gears without getting out of mesh. On the opposite side of the machine from the gear wheels the shaft of one of the rolls is extended 5 and provided with a driving wheel *x*. It will thus be seen that I provide a series of mixing and pulverizing rolls in which each roll may be adjusted independently of the others, which is advantageous for the reason that the rolls 10 are not likely to wear evenly and it will therefore be found necessary at times to adjust two rolls closer together without disturbing the relative positions of the others. Above the rolls I have provided a funnel *o* for feeding the material to them, and secured to the framing 15 beneath said rolls is a funnel *o'* which receives the material after it passes through said rolls and delivers it to a reciprocating screen *p*. This screen aids in mixing the material and prevents large pieces of any foreign substance which may have passed lengthwise between the rolls, from going into the glass. This screen may be operated in any 20 suitable manner but I have shown it operated by the pitman and crank driven by the belt *r* connected to a pulley *r'* on the shaft of one of the rolls *h*.

As shown in Fig. 4, the rolls *h* may be grooved longitudinally, the teeth of one roll engaging 30 the grooves of the adjacent ones to insure a more complete pulverization of the material.

As is evident, changes may be made in the construction of my device shown in the drawings; for instance, a different form of driving gear may be used, and other means for 35 adjusting the rolls and their journal blocks may be used instead of those shown. It is also evident that a different form of device for varying the distance between the journal 40 blocks may be used; and instead of grooving the upper and lower sides of the journal blocks, the upper and lower sides of the beams *a* and *d* respectively may be grooved, and the journal blocks and spacing blocks be 45 made to fit therein.

Having thus fully described my invention what I claim is:

1. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, 50 mounted in said frame means for adjusting said rolls horizontally independently of each other and simultaneously, and for holding them rigidly in their adjusted positions and means for driving said rolls, substantially as 55 described.

2. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, movable journal boxes for said rolls, means for adjusting said journal blocks horizontally

independently and simultaneously and for 60 rigidly holding them in their adjusted position, and means for varying the distance between said journal blocks, substantially as described.

3. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, 65 movable journal-blocks for said rolls, means for varying the distance between the journal-blocks and for moving the journal-blocks simultaneously, a rigid top for the journal 70 blocks at the center of the series of rolls and means for adjusting the journal blocks on each side thereof against said stop, and for holding them rigidly in their adjusted position and means for driving said rolls, substantially 75 as described.

4. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, movable journal boxes for said rolls, means 80 for varying the distance between the journal blocks consisting of thin removable strips *g'* placed between said boxes and means for drawing the journal blocks together tightly, substantially as described.

5. A glass batch mixer consisting of a supporting frame, the beams *a* mounted on said 85 frame, the beams *d* supported above beams *a* and parallel therewith, journal-boxes supported between each pair of beams *a* and *d*, said boxes being formed with grooves in their 90 upper and lower faces which fit the beams *a* and *d*, the flanges formed by said grooves embracing the sides of the beams, flanges being also formed on the vertical edges of these boxes, rolls supported in these boxes, spacing 95 blocks which fit between the journal boxes and are held in place by the vertical flanges thereof, and means for adjusting the journal boxes tightly, together and for driving the rolls, substantially as described. 100

6. A glass batch mixer consisting of a supporting frame, beams *a* and *d* arranged as described, journal blocks supported between 105 each pair of beams, rolls *h* journaled in said journal boxes, means for varying the distance between the journal boxes consisting of the spacing blocks *g*, and thin removable spacing strips *g'* placed between the blocks *g* and the journal boxes, means for moving the journal boxes sidewise and means for driving the rolls, 110 substantially as described.

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

DAVID PUGH.

Witnesses:

M. M. CONNELLY,
CLIFTON W. IRWIN.