

(No Model.)

2 Sheets—Sheet 1.

D. SEWELL.
SHAKING BOLT.

No. 592,617.

Patented Oct. 26, 1897.

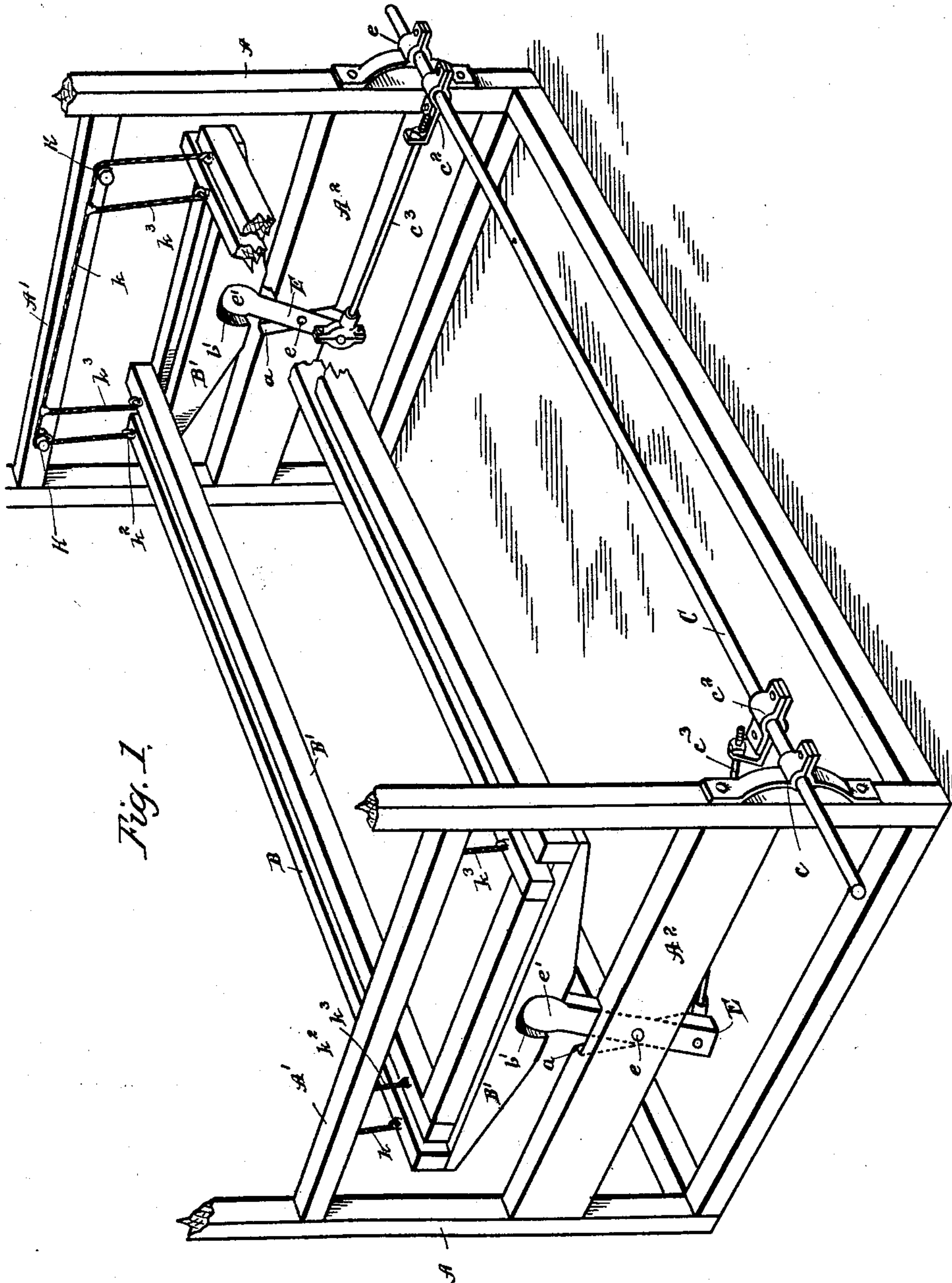


Fig. 1.

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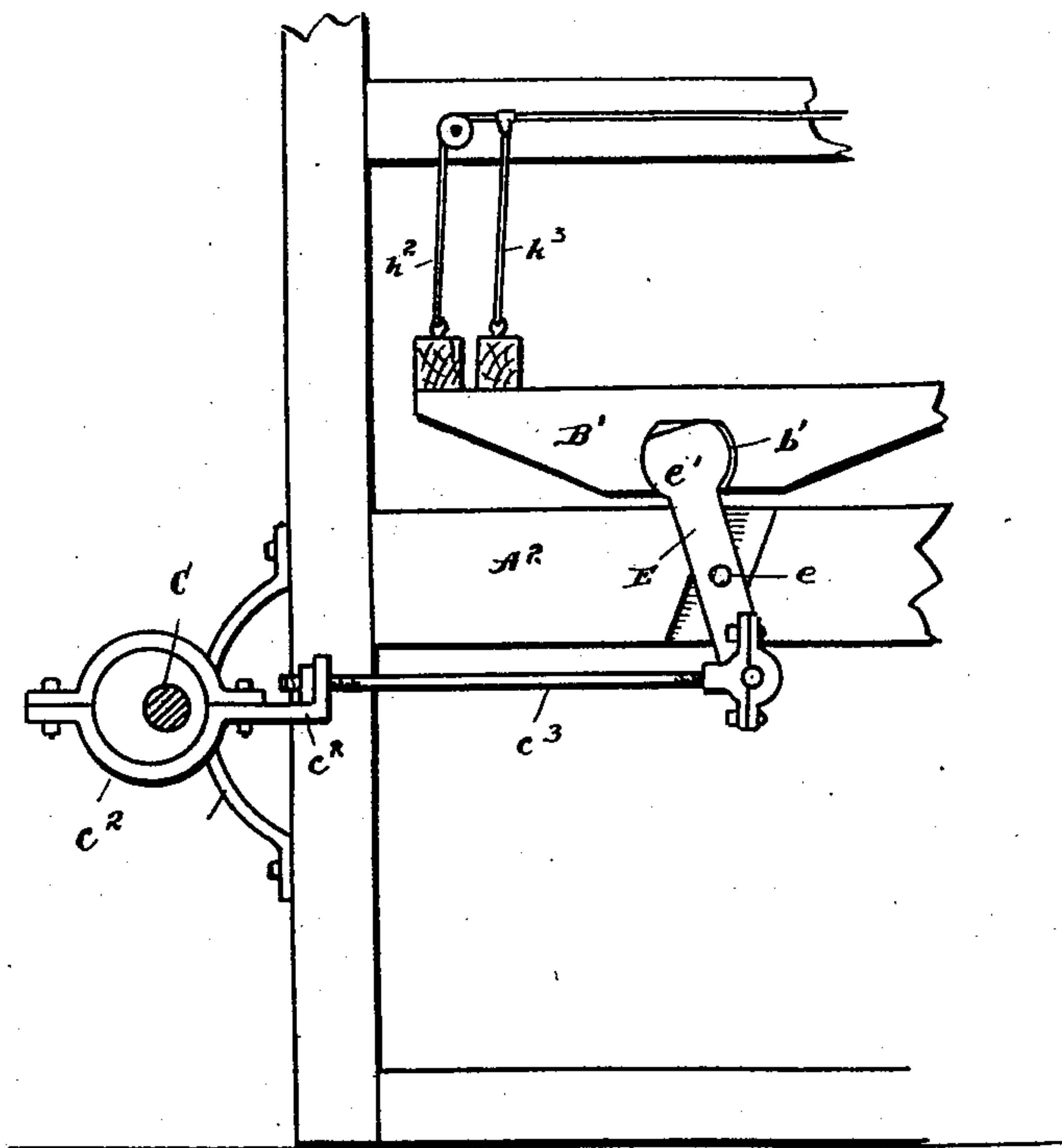
2 Sheets—Sheet 2.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

DELOS SEWELL, OF HILLSDALE, MICHIGAN.

SHAKING-BOLT.

SPECIFICATION forming part of Letters Patent No. 592,617, dated October 26, 1897.

Application filed November 20, 1896. Serial No. 612,827. (No model.)

To all whom it may concern:

Be it known that I, DELOS SEWELL, a citizen of the United States, residing at Hillsdale, county of Hillsdale, State of Michigan, have
5 invented a certain new and useful Improvement in Shaking-Bolts; and I declare the following to be a full, clear, and exact description of the invention, such as will enable
10 others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in shaking-bolts; and it consists in the peculiar
15 arrangement and combination of parts hereinafter pointed out and claimed.

Figure 1 is a perspective view of the compound bolting-frame with a portion of the
20 same broken away to show the operation of the parts more perfectly. Fig. 2 is an enlarged detailed sectional view showing one of the eccentrics and its connection with the oscillating arm.

In the drawings, A A represent the frame,
25 within which is hung a compound bolt comprised of two frames B and B', each carrying sieves, (not shown,) B', as it will be seen, being somewhat smaller and located within the frame B. These are hung from the cross-bars
30 A' A' of the frame A by peculiar mechanism, consisting of pins K K, projecting from the cross-bars A' A'. Entwined around these pins are wire ropes k k, passing from one pin to the other and the ends dropping down and
35 secured to adjustable eyebolts k² k², located in the larger and outer sieve-frame B. The inner sieve-frame B' is hung from that portion of the wire rope that extends from pin to pin by means of short sections of wire ropes sleeved
40 thereon and marked k³ k³. These also engage with adjustable eyebolts in the frame B'. These adjustable eyebolts permit the sieves to be leveled.

C is a longitudinal shaft journaled at c c in
45 brackets attached to the frame A and carrying, preferably, eccentrics of the common type located at c² c². Any crank means in the place of an eccentric would perform the same office, this not being any element of my in-
50 vention.

Attached to the eccentric-straps are pitmen c³ c³, which connect, respectively, with

vertical rocking arms E E. These rocking arms are journaled in slots in cross-bars A² A² of the frame on pivots e e. The slots are so
55 proportioned that on the extreme throw of the eccentric in either direction the rocking arms will come in contact with the walls of the slots at a a. The upper portion e' e' of the rocking
60 arms is made slightly convex and fits into somewhat larger recesses b' b' in the cross-bar B' B' of the larger sieve or frame B. The enlargement of this recess, which corresponds substantially in shape with that of the head
65 of the cross-bar, constitutes, in connection with the abutment formed by the slots in the cross-bars A' A', an important feature of my invention.

If desired, buffers of some semielastic material, such as leather, may be introduced at
70 all points of contact. A slight descent can be given to the two sieves from the head to the tail or discharge, and appropriate spouts can be arranged as in the ordinary way; but as these constitute no part of my invention what-
75 ever and are universally well known they are not illustrated nor described.

It is obvious that the forms could be varied without departing from the principle, and I
80 do not limit myself to the exact form shown.

The mode of operation of this device is as follows: The apparatus being constructed as
hereinbefore described and the shaft C being set in motion, the crank action of eccentrics
85 would cause an oscillating motion to be given to the rocking arms upon the pivots e e, by means of which motion is transmitted transversely to the swinging sieve-frame B, and as the upper sieve B' is contained within the frame of the lower one and is so proportioned
90 that its sides come in somewhat close relation thereto the frame B strikes the frame B' and also gives the upper and smaller sieve a transverse swinging motion. This motion is continued until it is met on the return mo-
95 tion by the frame B, when it is thrown in the opposite direction. In this way a continual reciprocating shaking movement is given to the upper sieve. The recesses in which the heads of the rocking arms engage in the cross-
100 bars of the frame B being somewhat larger than the heads permits a continued movement by the frame B in the direction in which it is started by the oscillation of the rocking

arm until the opposite face of the recess comes in contact with the opposite side of the head of the rocking arm, the rocking arm on its return movement throwing the sieve in the opposite direction. It will be observed that the rocking arm slows up its movement by virtue of the crank action of the eccentrics as those eccentrics reach and pass their dead-centers; but the sieve does not operate on this slowing-up movement, but the oscillating movements are sharp and rapid in that they are suddenly reversed by virtue of the mechanism described. The recesses in which the rocking arms oscillate being so proportioned that as the eccentrics reach their dead-centers the rocking arms come in contact with the sides of those recesses they take the strain due to the sudden stoppage of the sieves and relieve the eccentrics and shaft from any strain whatever except that due to the reversal of the sieve's motion. This strain is also almost, if not entirely, obviated by the semi-elastic material operating as buffers, as the elasticity causes the sieves to rebound from the extreme limit of their motion. This rebound is caught up and taken by the movement of the eccentric and the rocker-arms, so that the sudden jerk upon the eccentric that otherwise would occur, due to the sudden starting of the sieves in the other direction, is quite avoided.

Having thus described my invention, what I desire to claim is—

1. In an improved mechanism for shaking-bolts, the combination of a continuously-rotating driving-shaft, means connected with said shaft whereby rocking arms are caused to oscillate, rigid abutments against which said arms impinge at the extreme limit of their oscillations, a bolting-sieve and means

permitting it to swing, and recesses in the frame of said bolting-sieve in which the end of the oscillating arm engages, each of said recesses being larger than the head of the oscillating arm, substantially as described.

2. In an improved mechanism for shaking-bolts, the combination of a continuously-rotating driving-shaft, means connected with said shaft whereby rocking arms are caused to oscillate, rigid abutments against which said arms impinge at the extreme limit of their oscillations, a bolting-sieve and means permitting it to swing, recesses in the frame of said bolting-sieve in which the end of the oscillating arm engages, each of said recesses being larger than the head of the oscillating arm, and an interior bolting-sieve arranged to be operated by the frame of the exterior bolting-sieve, substantially as described.

3. In mechanism for operating shaking-bolts, the combination of a shaft and crank thereon, a pitman, an oscillating arm connected with said pitman and oscillated thereby, abutments against which said oscillating arms may come in contact at the extremity of the oscillation, a sieve adapted to engage the outer extremity of the oscillating arm by a connection which permits the motion of the sieve to continue a short distance after the motion of the arm has stopped, and hangers permitting the sieve to oscillate, substantially as described.

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

DELOS SEWELL.

Witnesses:

FREDERICK W. STOCK,
WILLIAM J. MAY.