E. INGLIS.

SCREENING APPARATUS.

APPLICATION FILED SEPT. 27, 1909.

973,787.

Patented Oct. 25, 1910.

Fig. 1.

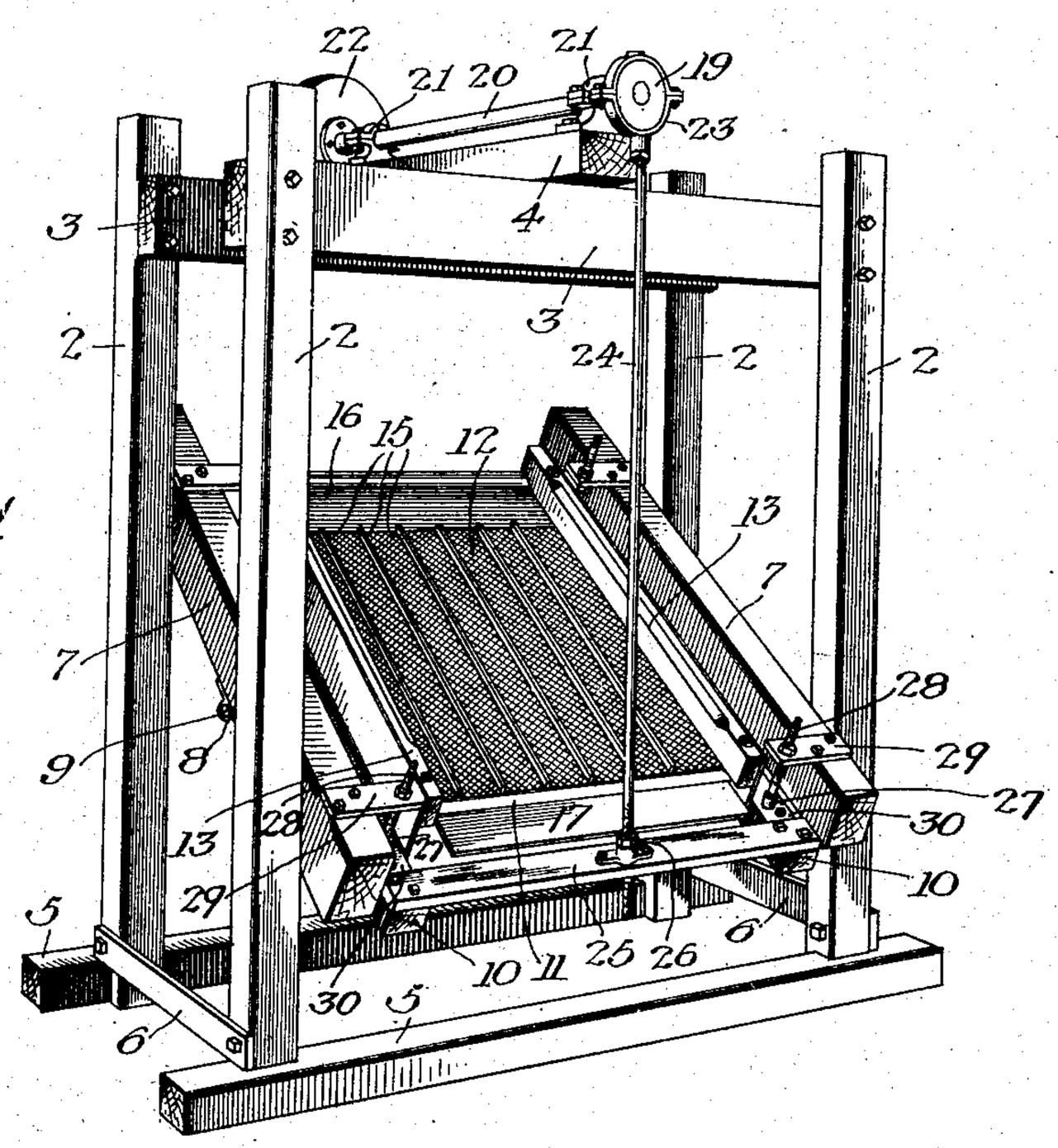
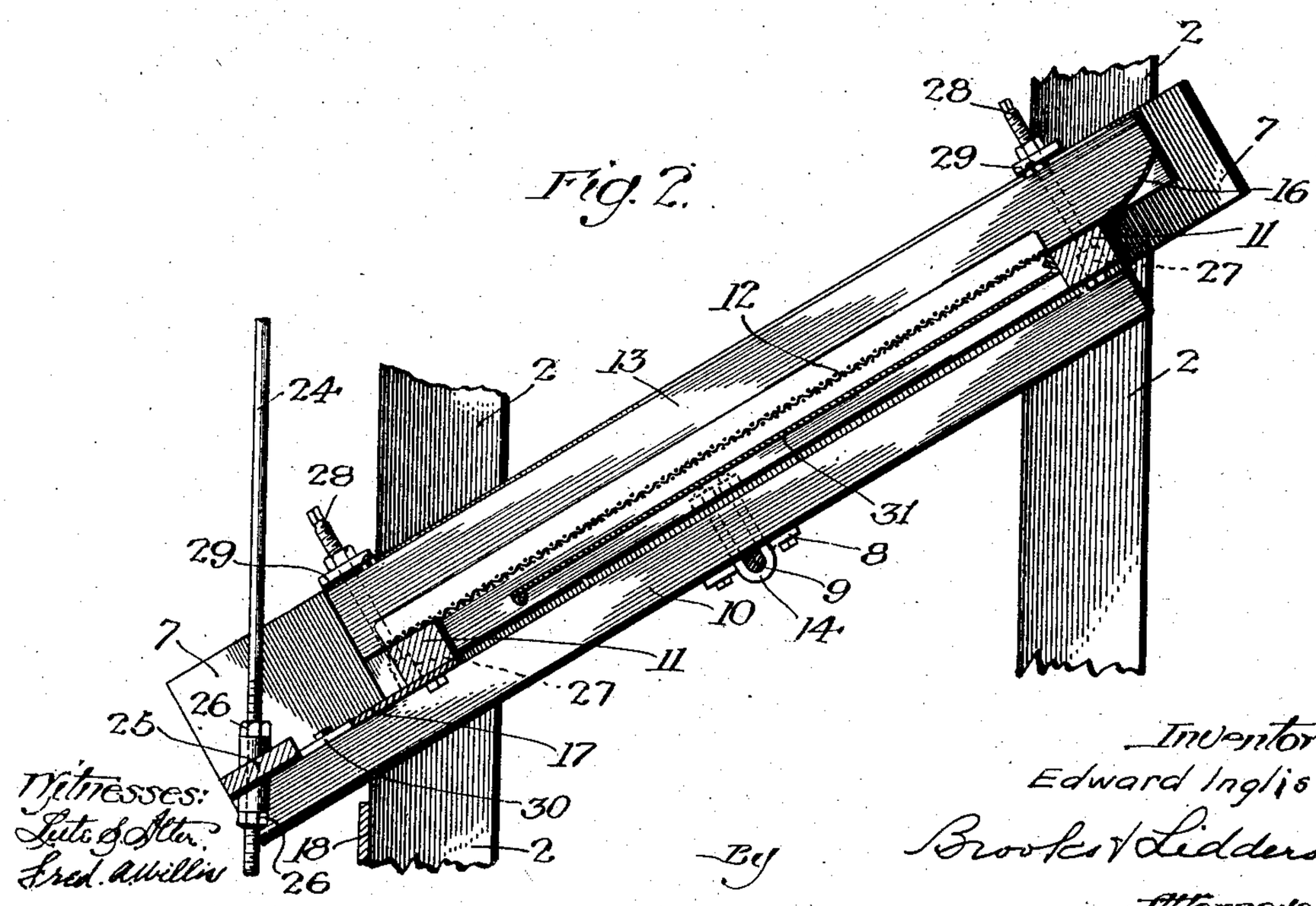


Fig. 2.



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UNITED STATES PATENT OFFICE.

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SCREENING APPARATUS.

973,787. Specification of Letters Patent. **Patented Oct. 25, 1910.**

Application filed September 27, 1909. Serial No. 521,640.

To all whom it may concern:

Be it known that I, EDWARD INGLIS, a citizen of the United States of America, residing at Kofa, in the county of Yuma, Territory of Arizona, have invented a certain new and useful Screening Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to screening apparatus and more particularly to that class of apparatus wherein the material being sifted is prevented from adhering to the screen by the latter being put in motion, and the motion abruptly checked at frequent intervals.

One object of the invention is to provide an apparatus of this description in which the reciprocating parts may be balanced, allowing the apparatus to be operated at a high frequency.

Another object is to interpose an elastic or yielding connection between the screen frame and the driving mechanism.

A further object is to provide apparatus of a simple construction, which shall be of low cost to manufacture and efficient and durable in use.

Other objects and the advantages of the invention will be apparent, to those skilled in the art, from a consideration of one form of apparatus embodying the invention taken in connection with the accompanying drawings, in which,

Figure 1 is a perspective of the complete apparatus, Fig. 2 is a central longitudinal section of the screen frame and associated parts.

The frame of the apparatus may comprise the posts 2, the horizontal cross-pieces 3, the tie piece 4, the sills 5, lower tie pieces 6 and the screen frame supports 7. To supports 7 are affixed bearings 8 which receive the ends of shaft 9. The screen frame may consist of side bars 10, and end pieces 11 and may be provided with any suitable means for holding the screen 12 therein, such as the clamping bars 13. Side bars 10 are attached to shaft 9 by means of U-bolts 14, at or near the middle of the screen.

The screen is preferably disposed at an angle to the horizon and it may be of any preferred construction and may be provided with slats 15 arranged parallel to the direction of its slope. At the upper end there may be placed a plate 16 to receive the material to be screened, from any suitable conveyer or from a distributer (not shown). At the lower edge of the screen, there may be an apron 17 to receive the over-size and carry it beyond a division board 18 (not shown in Fig. 1) which separates the over-size from the finer product.

The screen frame with its appurtenances may be given an oscillating or rocking motion upon shaft 9, by means of an eccentric 19 affixed to a shaft 20 supported in bearings 21 affixed to cross-piece 4. The end of shaft 20 remote from eccentric 19 may have thereon a flywheel pulley 22 which may be driven from any suitable source of power (not shown).

The strap 23 of eccentric 19 may be connected to the screen frame by means of eccentric rod 24 which is attached to an elastic element, consisting, in the present instance, of a leaf spring 25 of resilient wood such as oak or hickory. The ends of the spring 25 are attached to side bars 10. The lower part of the eccentric rod is threaded to receive nuts 26 whereby the length of the rod may be adjusted.

The oscillation of the screen is abruptly checked at each end of the stroke by stops 27 consisting of screws 28 threaded in brackets 29 attached to support 7 and adapted to contact with plates 30 on side bars 10.

A pan 31 may be attached to the screen frame a short distance below the screen for use in wet screening.

In the use of this apparatus, motion being communicated to fly-wheel pulley 22, the screen is oscillated by the means described. The material to be screened, which may consist of pulverized ore or the like, either in a wet or dry state, is then delivered on the plate 16 and passes downward over the screen 12 by gravity. The abrupt checking of the oscillation at each stroke causes the material upon the upwardly moving portion of the screen to be thrown upwardly from the surface thereof, while any particles of material upon the downwardly moving portion of the screen which are of such a size as to fit the interstices of the screen and to stick therein are dislodged, and discharged downwardly. This succession of alternate impulses given to the material produces a more

rapid passage of the finer particles through the screen than would be the case were the impulses only in one direction.

The screen being practically balanced requires less power to operate it than would otherwise be the case.

The elastic element introduced into the mechanism for oscillating the screen effects a further economy of power, saves shock to the mechanism and permits of the stroke being varied by adjusting the screws 28.

When the apparatus is used for wet screening, a part of the water introduced with the material falls on to pan 31 and a part thereof is thrown upward against the bottom of the screen by the movement of the pan.

I claim:

1. In screening apparatus, in combination, a screen and frame therefor pivotally mounted intermediate of its ends, a leaf spring attached to said frame, and means for oscillating said screen, including a shaft, an eccentric thereon, an eccentric strap on said eccentric, an eccentric rod connected to said strap at one of its ends and to said leaf spring at its other end.

2. In a screening apparatus, in combination, a screen, a frame therefor, a shaft disposed transversely of said frame, means to oscillate said frame upon said shaft, a leaf spring attached to said frame, a rod attached to said spring and means to reciprocate said rod.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses at Kofa, county of Yuma, Territory of Arizona, this 14th day of September A. D. 1909.

EDWARD INGLIS.

Witnesses:

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G. M. HENSHAW.