

(No Model.)

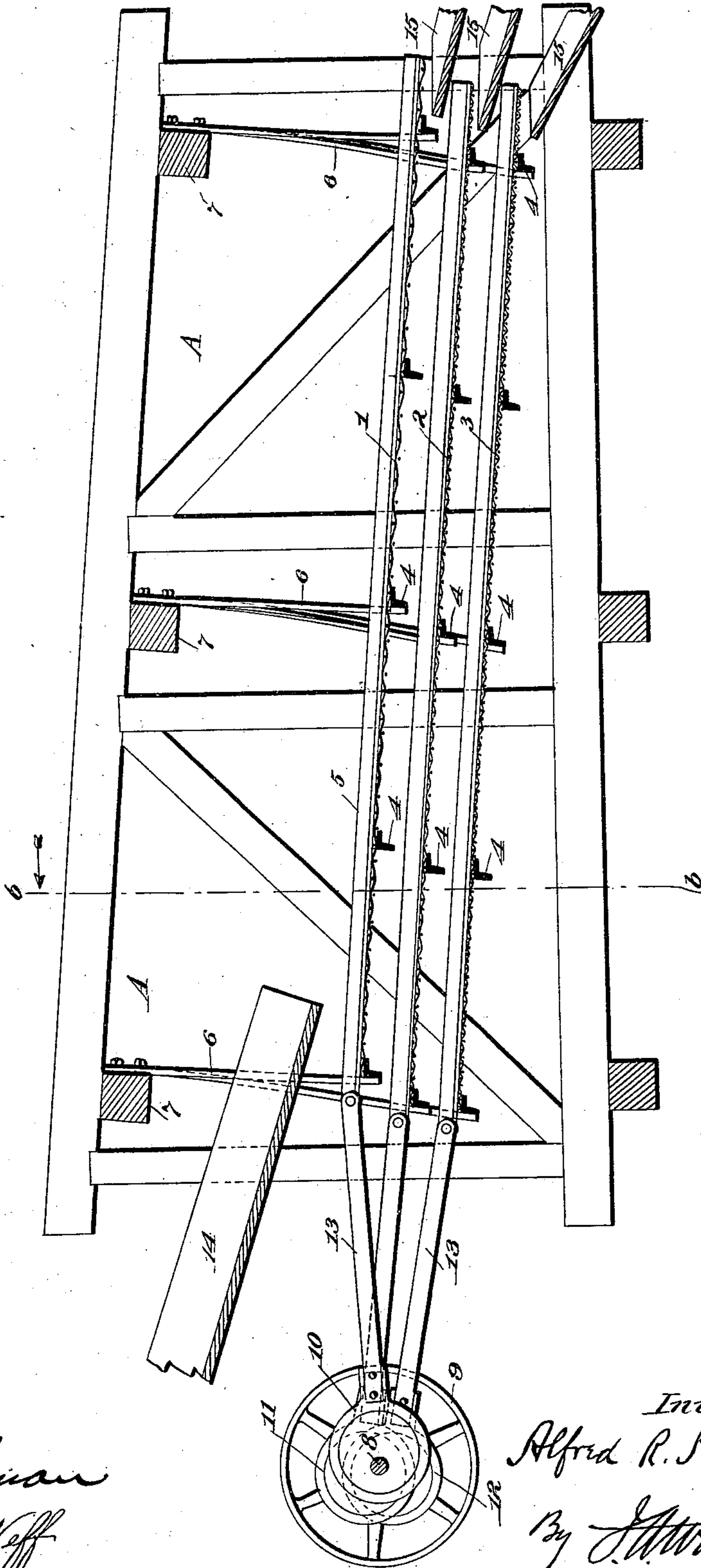
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A. R. ANTHONY.
SEPARATOR.

No. 556,078.

Patented Mar. 10, 1896.

Fig. 1



Witnesses;

J. F. Cleiman
Will E. Neff

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Alfred R. Anthony
By J. Watson
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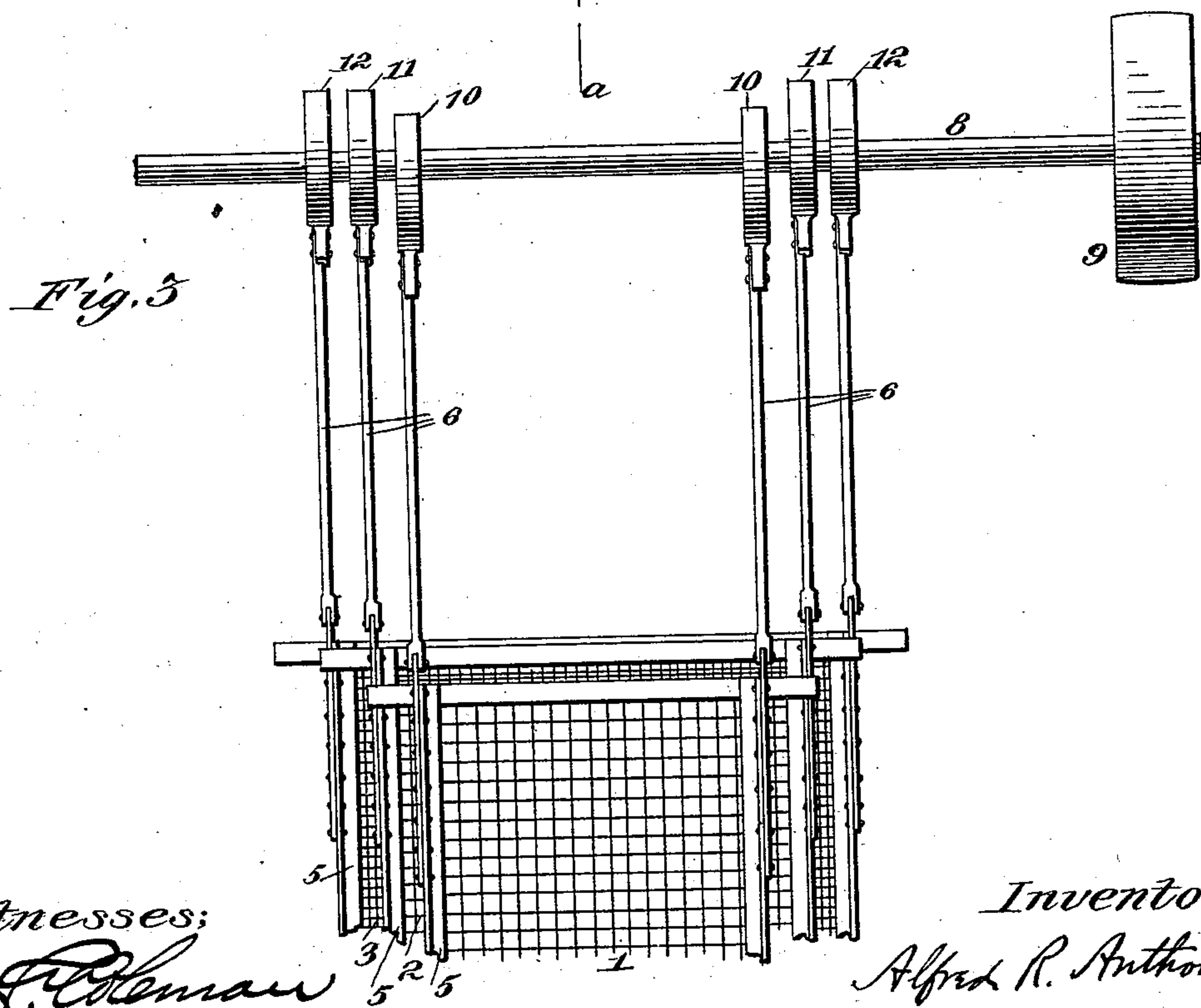
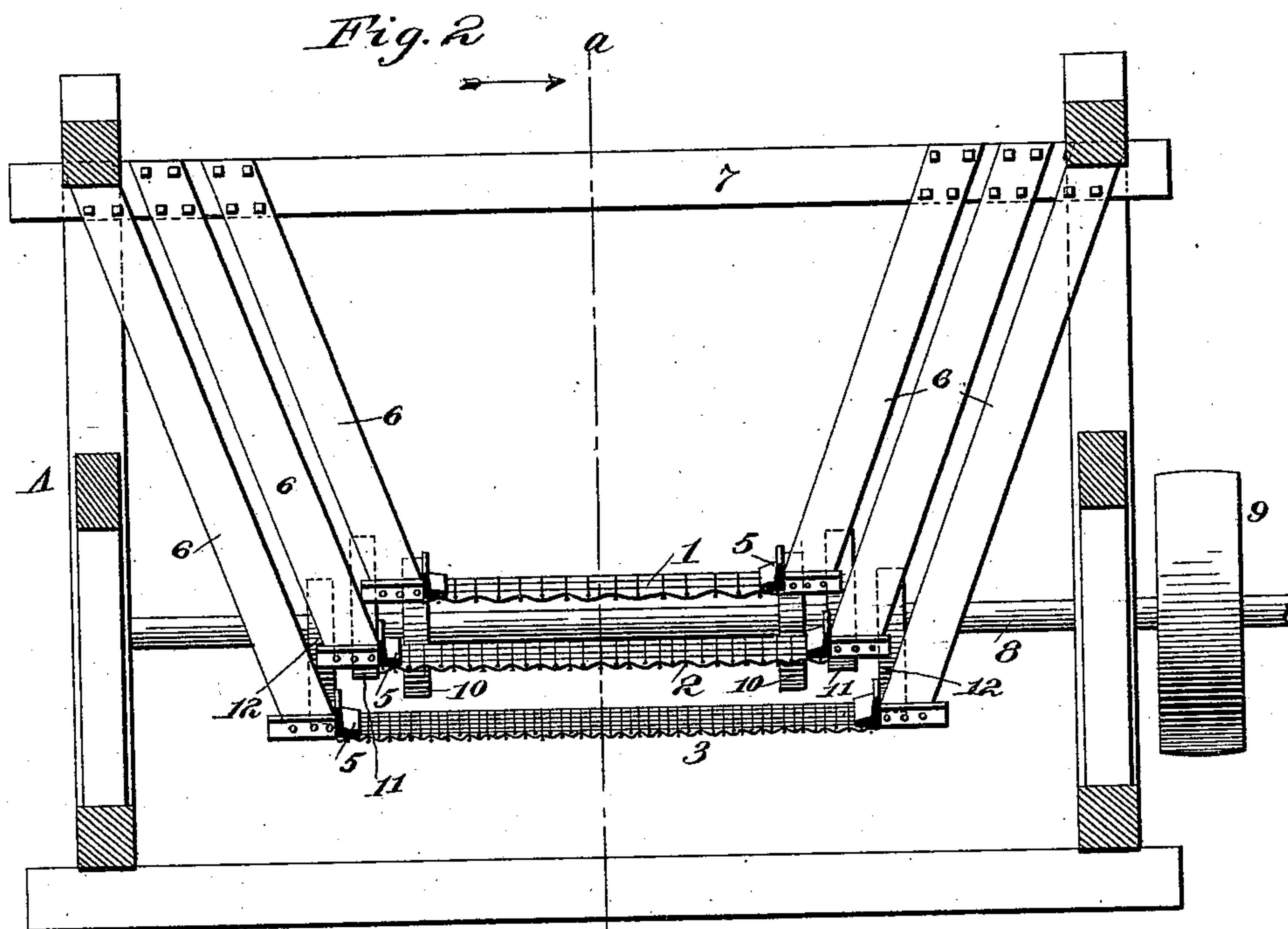
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2 Sheets—Sheet 2.

A. R. ANTHONY.
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Patented Mar. 10, 1896.



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UNITED STATES PATENT OFFICE.

ALFRED ROWAN ANTHONY, OF NEW YORK, N. Y.

SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 556,078, dated March 10, 1896.

Application filed January 24, 1895. Serial No. 536,158. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ROWAN ANTHONY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Separators, of which the following is a specification.

My invention relates to an improvement in separators principally used for coal and ore, but applicable to other materials.

The object of the invention is to construct a separator in which the screens may be reciprocated or vibrated without shaking or injuring the structure or building in which the apparatus is located to an injurious extent and to accomplish the screening and separation of the material with a small expenditure of power.

To these ends the invention consists in an improved structure, the details of which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal central section on the line *a a* of Fig. 2. Fig. 2 is a section on the line *b b* of Fig. 1, and Fig. 3 is a partial plan view showing the connections from the power-shaft to the screens.

The drawings show a form of my invention which I have constructed and tested with very satisfactory results. A plurality of screens 1 2 3 are located one above the other, the upper screen having the largest mesh, the next screen being finer, and so on to the bottom one, which is the finest. The screens are attached to a suitable framework, consisting of cross-bars 4 and longitudinal side bars 5. The screens are suspended from a suitable rigid framework A by spring-supports 6, consisting of rods of wood or metal of suitable cross-section. In practice I have found that oak or other hard-wood planks are very economical and effective supports for the screens. As shown, these supports 6 are bolted at their upper ends to heavy cross-timbers 7, and at their lower ends they are connected with extensions of cross-bars 4 of the screens. The planks or spring-supports 6 serve to cushion the screens at the end of each stroke or vibration and aid in reversing their motion, thus economizing power and minimizing all objectionable jar. By connecting the corresponding spring-supports for the entire series

of screens to the same beams or parts of the frame and operating the screens alternately the strains that would naturally be transmitted to the timbers of the frame by any one of the screens are neutralized by the opposing strains transmitted from the other screens of the series. Further, the strains transmitted by the screens are very much modified by the elasticity of the spring-supports.

I attach the spring-supports to the frame so that in their normal position, when not under tension, they will lie in vertical planes which are at right angles to the direction of movement of the lower ends of the springs.

The screens are vibrated by connections with a common drive-shaft 8, to which power is communicated by means of a pulley 9 or in any other suitable manner. As shown, each of the screens is connected to a pair of eccentrics, the eccentrics 10 driving the upper screen and the eccentrics 11 and 12 driving the middle and lower screens. The eccentrics are spaced around the shaft so that they operate in succession, the illustration showing three eccentrics in a group, spaced one hundred and twenty degrees apart. The eccentrics are connected with the screens by eccentric straps and rods 13, the inner ends of the latter being pivoted to the frames of the screens.

The screens are inclined, and the coal or other material is delivered at the upper end of the upper screen in any suitable manner, as by the chute 14. The separated materials may be delivered by the screens into separate chutes 15. I have found the separators constructed according to my invention to work with a minimum of power and to impart no injurious vibrations to the breaker or other structure in which the apparatus is located.

It will be evident that minor changes in the design and construction of an embodiment of the invention may be made without departing from the spirit thereof, and hence I do not wish to be limited to the precise construction and arrangement shown and described.

What I claim is—

In a separator, the combination of a plurality of screens arranged one above the other in a vertical series, the frame in which said screens are suspended, and the spring-rods for supporting said screens, each screen be-

ing supported in said frame by independent rods the lower ends of which are connected with the screen and the upper ends rigidly fastened to suitable parts of the frame, the
5 corresponding supporting-rods of the several screens being rigidly connected to the same part of the frame, and said rods being normally in vertical planes transverse to the direction of their movement; and means for re-
10 ciprocating the screens in opposing direc-

tions, whereby the strains transmitted through the spring-supports are neutralized at their point of attachment to the frame, substantially as described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

ALFRED ROWAN ANTHONY.

Witnesses:

LEO SCHWAB,
A. W. BLAKE.