

No. 621,402.

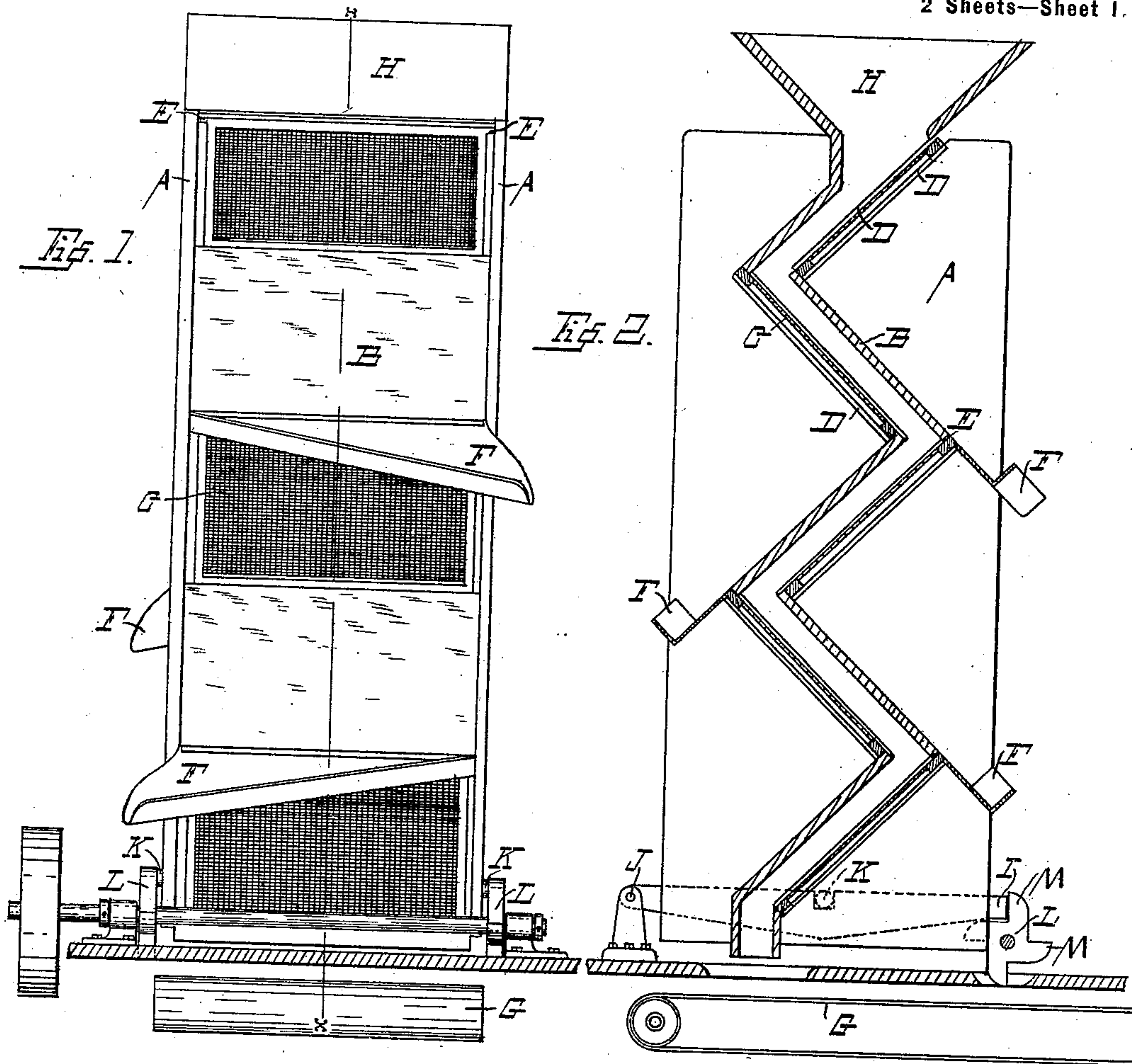
Patented Mar. 21, 1899.

W. A. FANNON.
STEP SCREEN FOR PULP CHIPS.

(Application filed Oct. 11, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

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Witnessed Timber

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2 Sheets—Sheet 2.

Fig. 3.

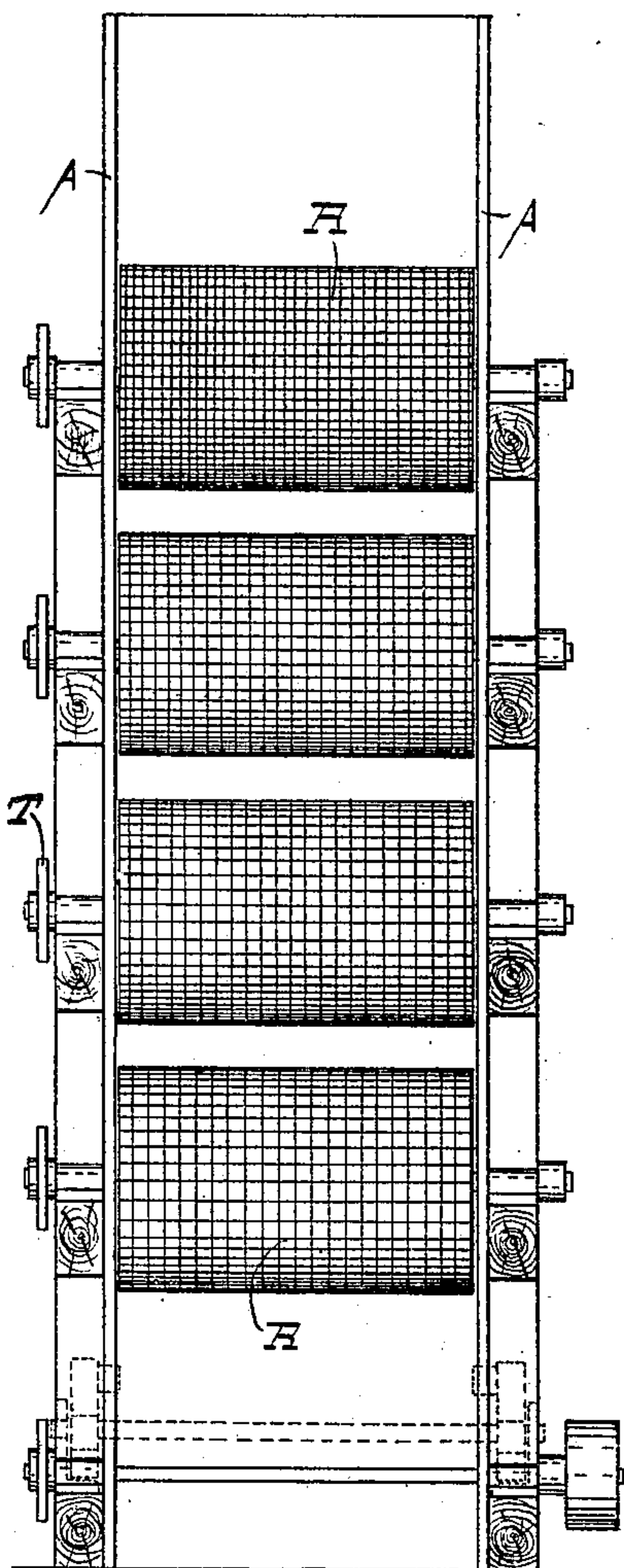
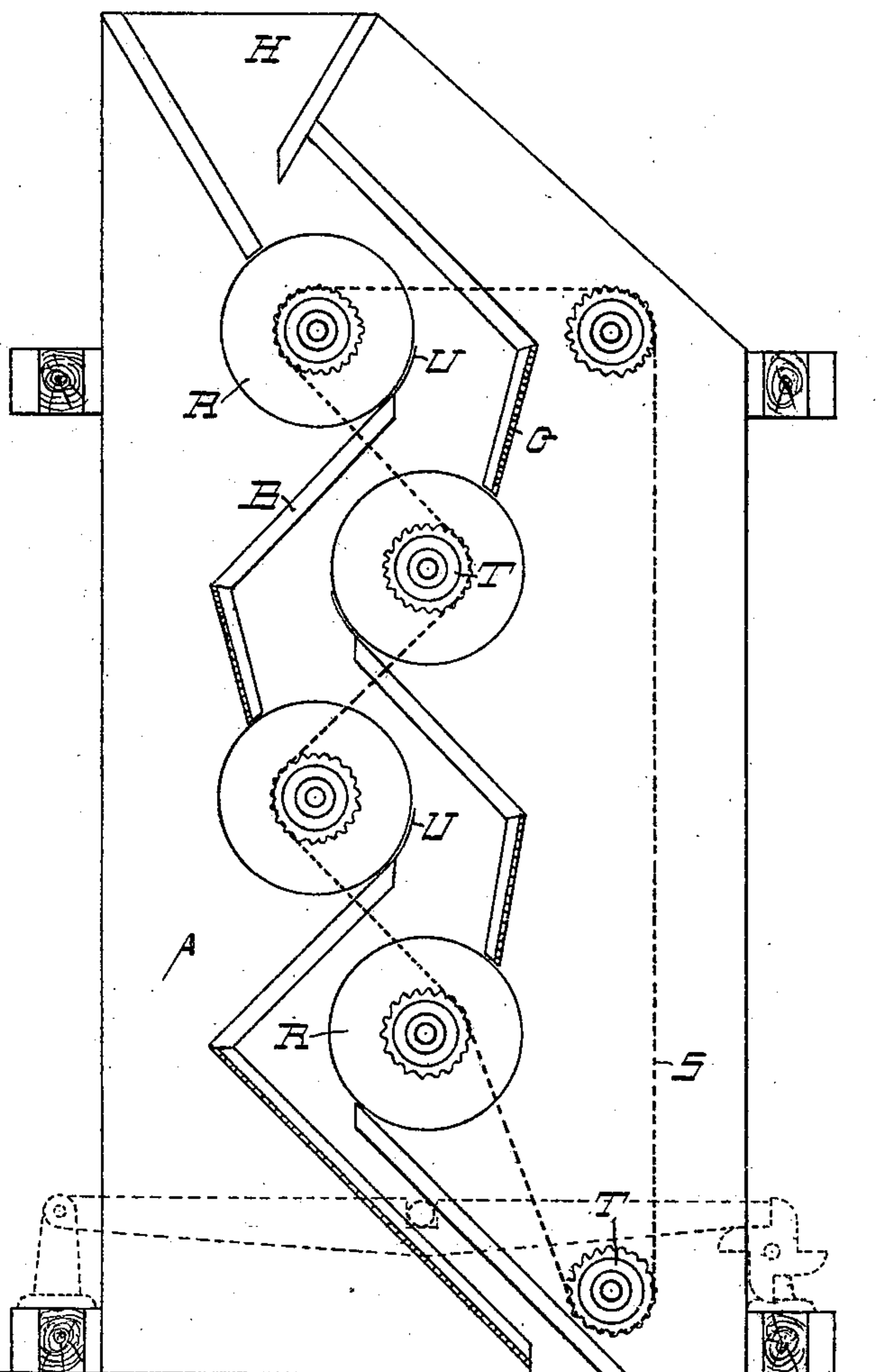


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM ALSOP FANNON, OF APPLETON, WISCONSIN.

STEP-SCREEN FOR PULP-CHIPS.

SPECIFICATION forming part of Letters Patent No. 621,402, dated March 21, 1899.

Application filed October 11, 1897. Serial No. 654,860. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALSOP FANNON, a citizen of the United States, residing at Appleton, in the county of Outagamie and State of Wisconsin, have invented new and useful Improvements in Step-Screens for Pulp-Chips, of which the following is a specification.

My invention relates to improvements in step-screens for pulp-chips.

It is well known among manufacturers of paper from wood-pulp that the appearance and purity of the paper depend largely upon the quality of the pulp-chips and their freedom from bark and other foreign matter. It is also well known that it is exceedingly difficult to remove the fragments of bark from the pulp-chips owing to their tendency to lodge in the crevices of the chips.

The objects of my invention are, first, to provide a device in which the chips will be turned over at intervals and thoroughly shaken up to dislodge and remove the bark fragments, and, second, to provide for sorting the chips, whereby the smaller chips, which contain not only the fragments of bark, but also those of knots and bits of decayed wood, may be separated and graded for the manufacture of various qualities of paper.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is an elevation showing the arrangement of the screens between the supporting-walls. Fig. 2 is a section view drawn on line *xx* of Fig. 1. Fig. 3 is a view similar to that shown in Fig. 1, illustrating a further modification of my invention. Fig. 4 is a side view of the same with one of the inclosing walls removed to show the interior.

Like parts are identified by the same reference-letters throughout the several views.

A zigzag chute is formed between the inclosing walls A A by means of the inclined platforms B and screens C, the screens being located to form the under side of each section of the chute and the platform the upper side of such sections. The screens are preferably made removable, being supported between the walls A A by cleats D and shoulders E, the latter being arranged to project from the screen-frames in a position to engage the walls A A. With this construction of the chute it

is evident that the material which passes through any one of the screens C drops upon the upper surface of the platform B of the next section beneath and slides down into a trough F, which is laterally inclined, so as to discharge the material at one side of the chutes.

By using screens of small mesh in the upper portion of the chute and increasing the size of the mesh in the successive screens below it is evident that material escaping there-through will be graded in size and also in quality, as the refuse matter is usually small in size, and therefore escapes through the screens of small mesh in the upper portion of the chute. At the bottom of the chute the remaining material, which represents the best quality and usually the principal portion of the pulp-chips, is dropped upon a conveyer G and transported to the point of use.

The material is fed into the chute through a hopper H. As it drops from one screen to another it is turned over and the resiliency of the screens causes it to bound violently, thus shaking out the particles of bark and other refuse from the crevices.

In order to thoroughly shake the chips while passing through the chute, I support the chute upon the levers I, the latter being pivoted at J and arranged to engage studs K, projecting from the chute-walls. The levers are actuated by a shaft L, provided with arms M, which are adapted to successively lift the end of the lever to raise the chute and permit it to drop to its original position as the actuating-arm escapes past the end of the lever.

In Figs. 3 and 4 I have illustrated a further means for shaking up the chips, which is adapted to be used in addition to the means shown in Figs. 1 and 2. Rotary screen-drums R are interposed between the lower ends of the screens C and the upper ends of the succeeding platforms B, the effect of the screens being to throw the chips from the upper screens to those next below and at the same time insure their being turned and shaken. Motion is communicated to the drums from the source of power through a sprocket-chain S and pinion T. The platforms are provided with shields U, adapted to prevent the escape of the chips between them and the drums. The dirt or other foreign matter is permit-

ted to escape through the drums, as well as through the screens C. This form of construction is especially recommended where the quality of the chips is poor or where extra cleaning is required, as in this device the chips may be shaken up with any desired violence while passing through the chute.

While my invention is peculiarly adapted for cleaning and separating pulp-chips, it is evident that it may also be used for screening coal and for other similar purposes.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with supporting side walls, of a chute formed of a plurality of alternating screens and platforms, screen-covered drums arranged between the successive screens and the succeeding platforms, a lever supporting the lower end of the chute, means for intermittently raising said lever and chute, and permitting the same to drop to their original position, and means for imparting a rotary movement to said drums whereby the pulp-chips are shaken with the movement of the chutes and turned with the independent movement of the drums, substantially for the purpose set forth.

2. The combination with supporting side walls, of a chute formed of a plurality of

screens and platforms, arranged in zigzag series between the side walls, a lever supporting the lower end of the chute, and means for intermittently raising said lever and chute and permitting the same to drop to its original position, substantially for the purpose set forth.

3. The combination with supporting side walls, of a chute, formed of a plurality of screens and platforms, arranged in zigzag series between said side walls, of a lever supporting the lower end of the chute, and a shaft provided with arms adapted to intermittently raise the ends of the lever and permit the same to drop to its original position, substantially for the purpose set forth.

4. The combination with supporting side walls, of a chute formed of a plurality of alternating screens and platforms, screen-covered drums arranged between the respective screens and the succeeding platforms, and means for communicating motion to the drums, substantially for the purpose set forth.

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

WILLIAM ALSOP FANNON.

Witnesses:

JOHN NELLIE,
JOHN DICK.