

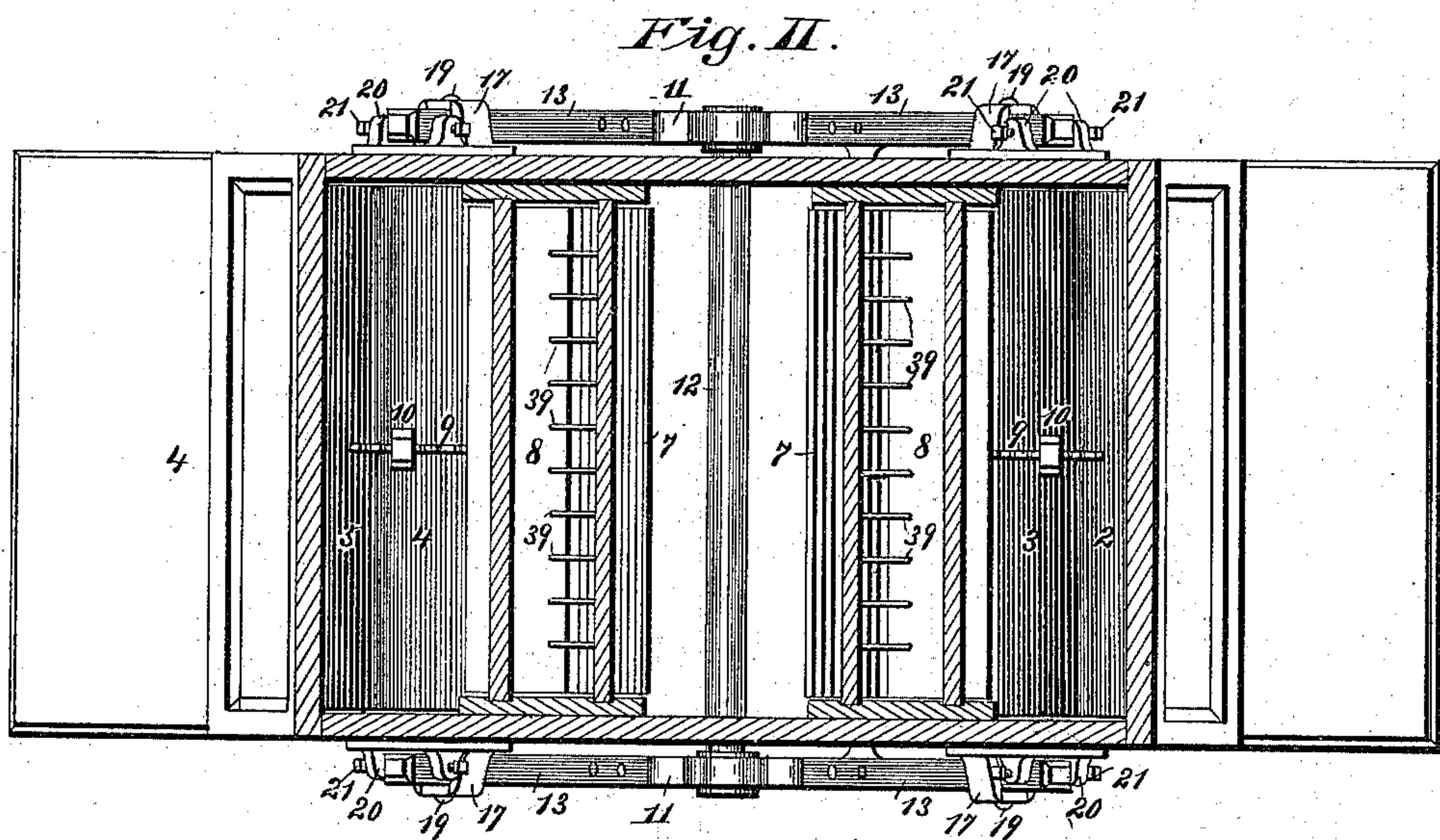
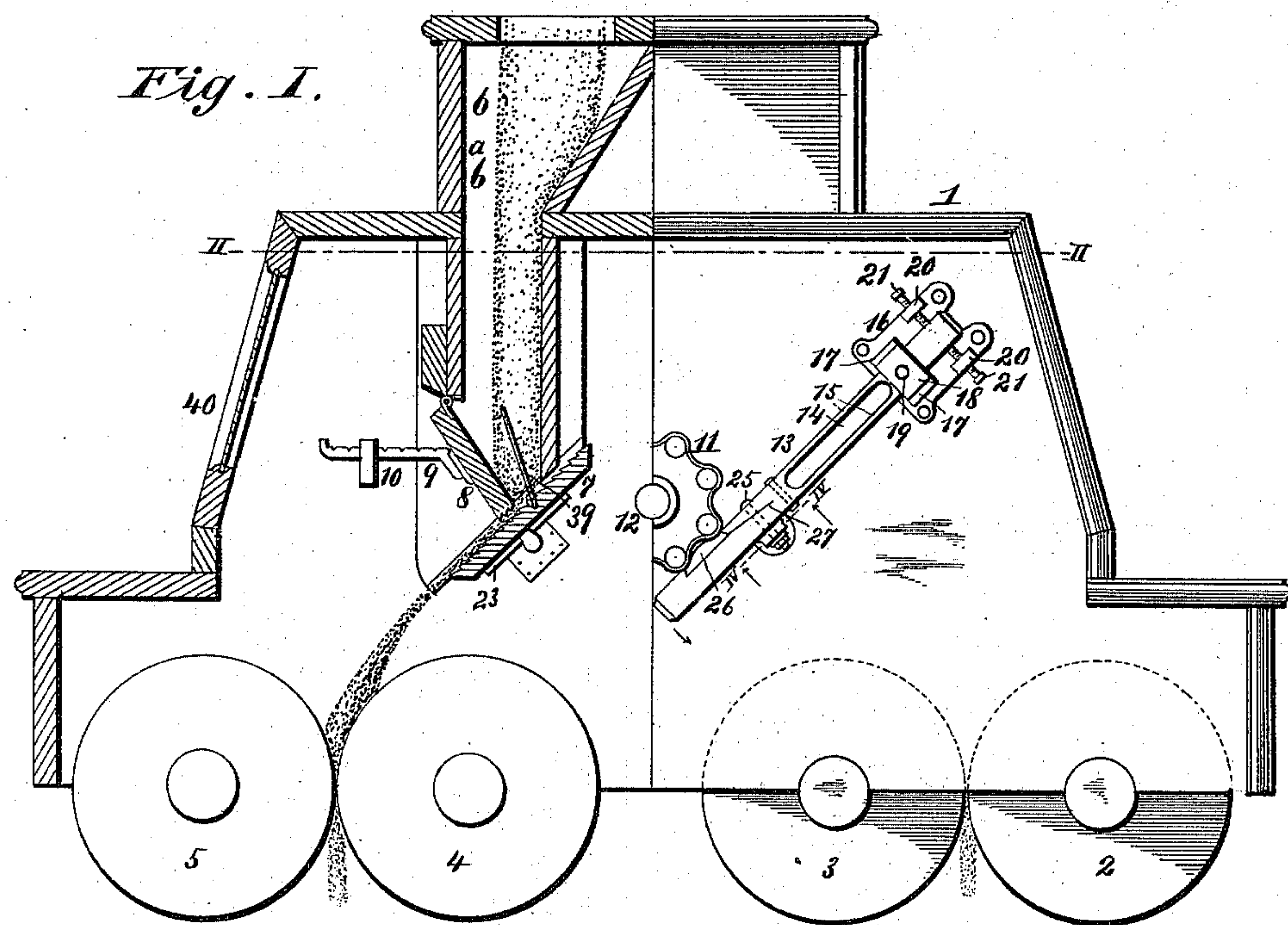
(No Model.)

2 Sheets—Sheet 1.

G. W. COMBS.  
FEEDER FOR MILL ROLLS.

No. 528,077.

Patented Oct. 23, 1894.



Witnesses:  
L. G. Fischer  
A. C. Brown

Inventor:  
Geo. W. Combs  
By Knight Bros.  
Atlys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. III.

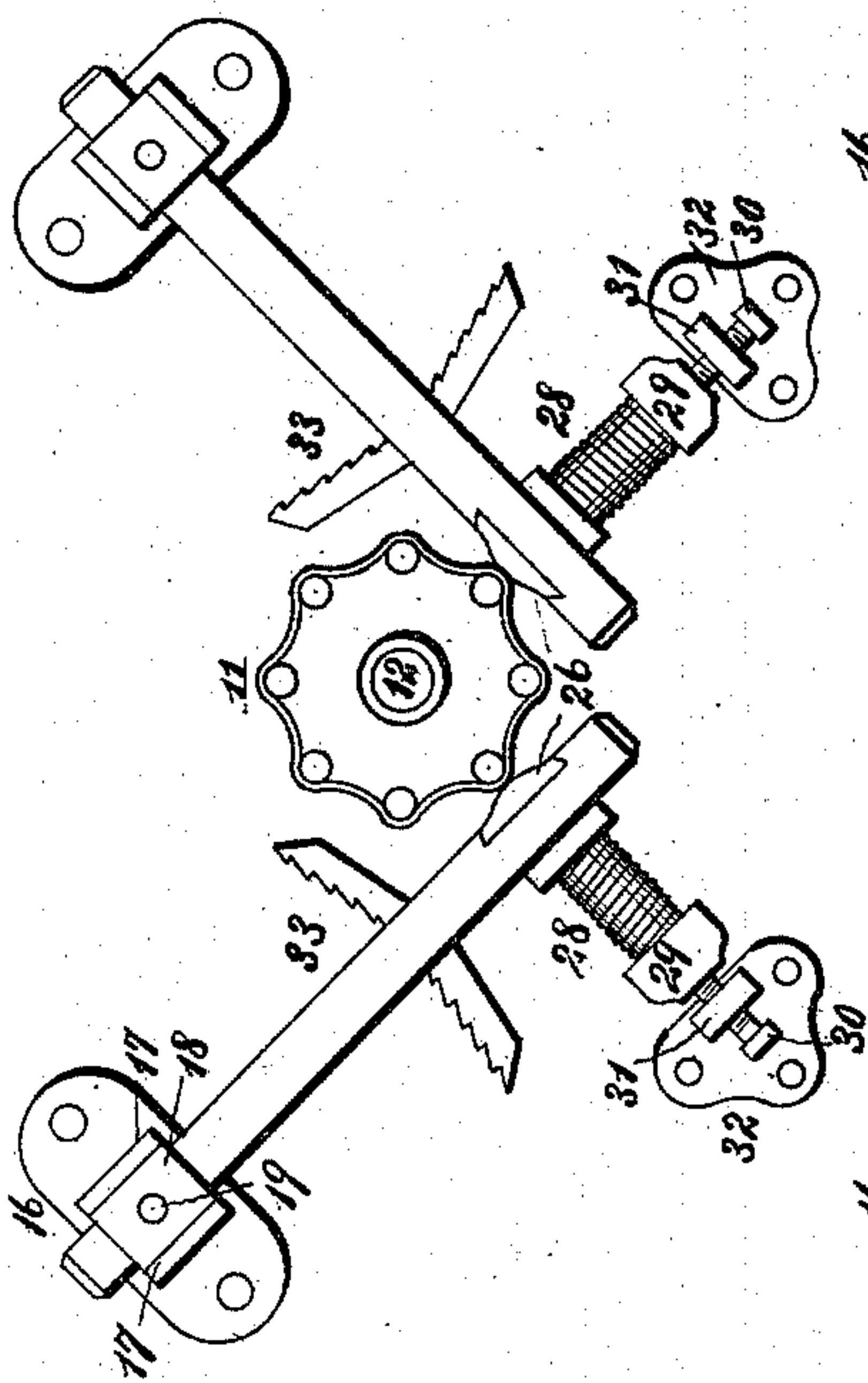


Fig. VIII.

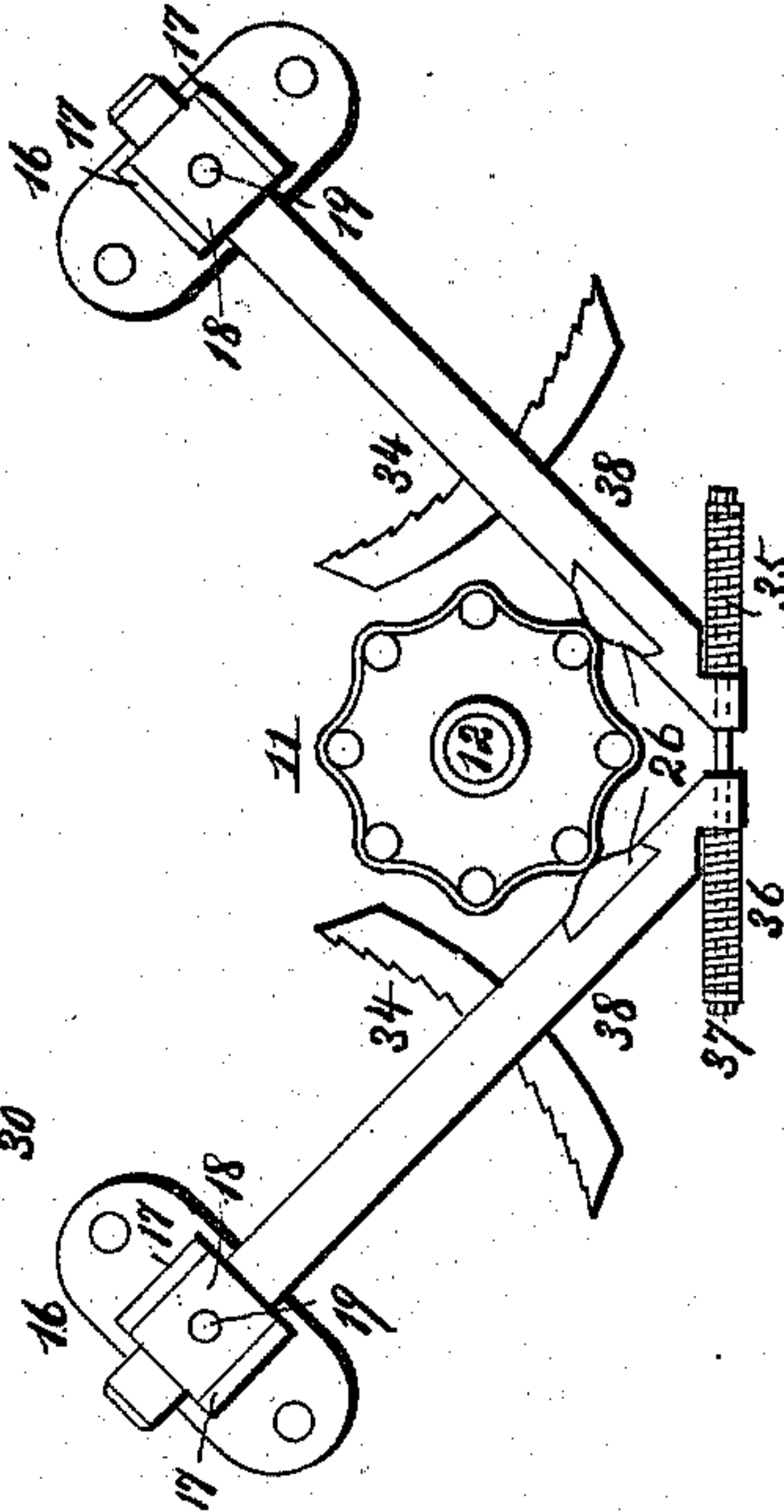


Fig. VI.



Fig. V.

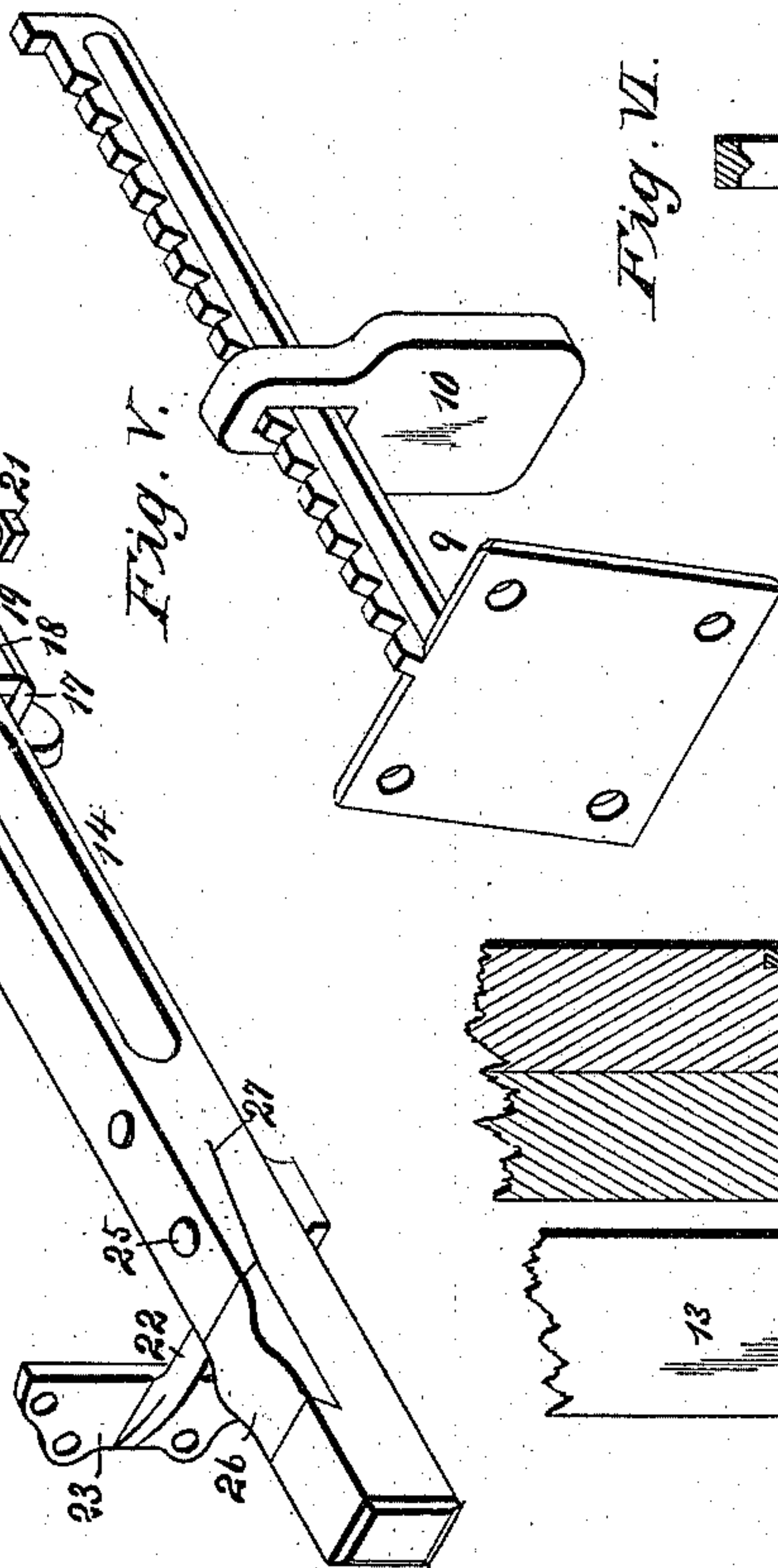
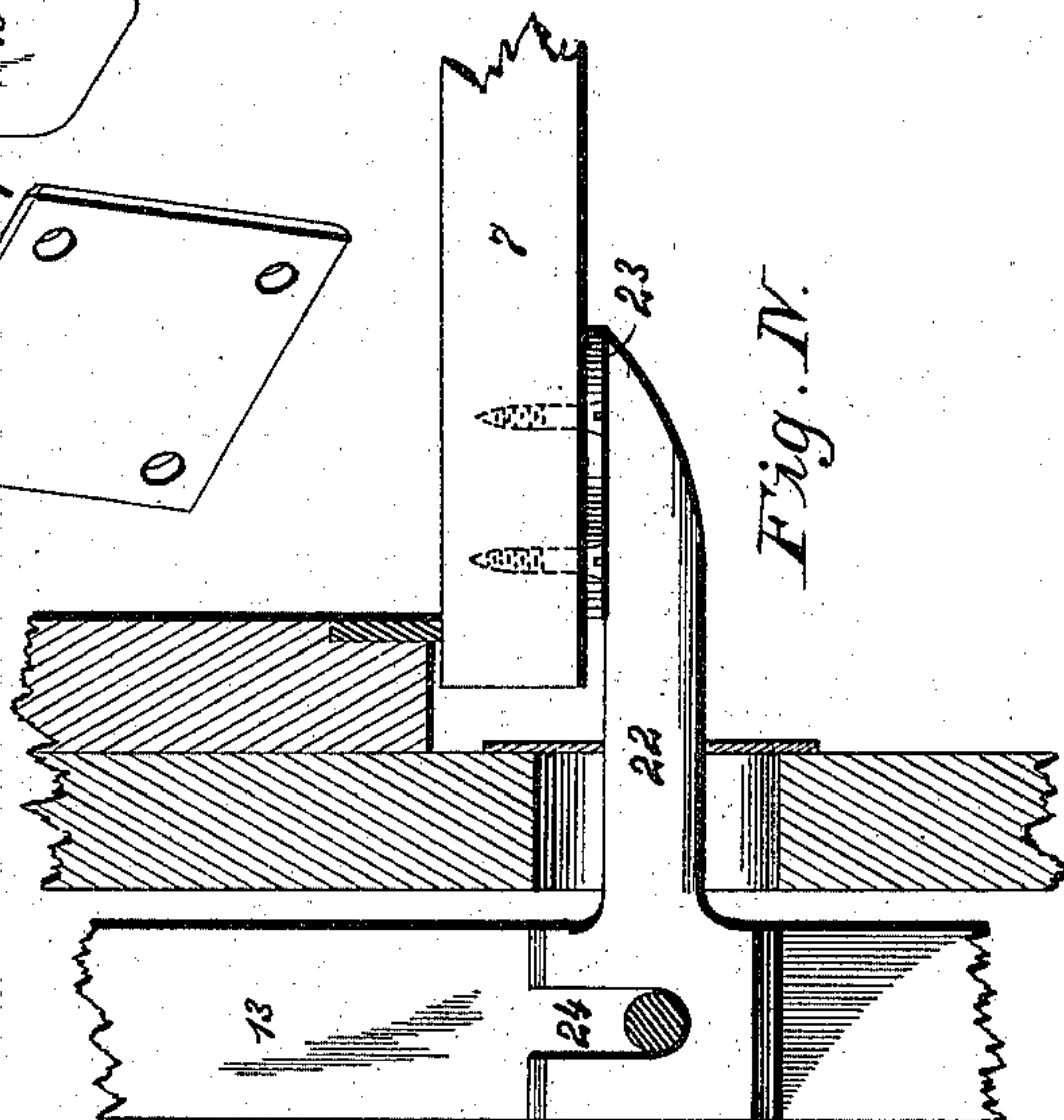


Fig. III.



Fig. IV.



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# UNITED STATES PATENT OFFICE.

GEORGE WILLIAM COMBS, OF LEAVENWORTH, KANSAS.

## FEEDER FOR MILL-ROLLS.

SPECIFICATION forming part of Letters Patent No. 528,077, dated October 23, 1894.

Application filed June 11, 1894. Serial No. 514,244. (No model.)

### *To all whom it may concern:*

Be it known that I, GEORGE WILLIAM COMBS, of Leavenworth, in the county of Leavenworth, in the State of Kansas, have invented certain new and useful Improvements in Feeders for Mill-Rolls, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in feeders for mill rolls, and my invention consists in certain features of novelty hereinafter described and pointed out in the claims.

Figure I,—represents an end view with part of the housing removed. Fig. II,—represents a plan view with the top of the housing removed on the line II—II— of Fig. I. Fig. III,—shows in detail my improved spring for vibrating the feed-board and the means for securing the same to the housing. Fig. IV,—shows in detail the means by which the vibrating spring is secured to the feed-board. Fig. V,—shows in detail the weighted lever by which my improved automatic feed gate is regulated and controlled. Fig. VI,— is a cross section of the weight carried on the lever. Fig. VII,— represents a modification of my device showing pivoted hangers and springs actuating the same, and showing also my improved angular feed-board. Fig. VIII,— shows also a modification of the springs actuating the pivoted hangers.

Similar numerals refer to similar parts throughout the several views.

1,— represents the housing, in which a series of mill rolls 2—3—4 and 5 are located.

6,— represents a discharge pipe communicating with the interior of the housing.

7,— represents an inclined feed-board at the bottom of the discharge pipe.

8,— represents an automatic feed-gate located upon one side of the discharge pipe and having pivotal connection therewith.

9,— is the arm of a lever secured to the feed-gate provided with the weight 10, adjustable thereon, the action of the feed-gate and the weight of the stock necessary to change its position and increase or decrease the amount of feed being determined by the position of the weight upon the arm.

11,— is a cam of any desired contour carried

upon the shaft 12 journaled in the housing. This cam may be of any desired contour, but I preferably use the octagonal form as shown. 55

13,— is a spring formed from a single piece of wood or other suitable material preferably recessed as shown at 14, leaving the two arms 15 of the required tension.

16,— is a bracket preferably secured to the outside of the housing; and is provided with the lugs 17, between which is secured the spring by means of the plate 18, through which passes the bolt 19 forming a pivot for the spring. Upon the bracket are also carried the lugs 20 carrying set bolts 21 by which the pressure of the spring upon the cam is adjusted. 60

22,— is an arm secured to the spring provided with a plate 23 upon which is carried the feed-board. The arm is provided with the slot 24 through which passes the bolt 25 by which it is secured to the spring, the purpose of the slot being that when the bolt 19 by which the spring is secured to the bracket, is removed and the bolt 25 loosened the spring is released and may be removed without interfering with the feed-board or other parts of the machinery. The spring is provided with the cushion 26 of leather or other suitable material at the point of its contact with the cam. This cushion is curved on its face of contact, is dove-tailed into the spring and the spring is sawed as shown at 27 providing a slot in the spring passing beyond the bolt 25 whereby the cushion is more firmly secured in its position. 65 70 75 80 85

28,— represents coil-springs carried on the blocks 29, held in place and adjustable by the set bolts 30, threaded in the lugs 31 on the brackets 32, adapted to be secured to the housing. 90

33,— represents feed-boards of an angular form.

34,— represents feed-boards of circular form, which modified forms may be used with great advantage with my improvements. 95

35 and 36,— represent coiled wire springs carried on the rod 37, passing through the ends of the arms 38. When the form of spring shown in Fig. VII or Fig. VIII, is used, the arm is not cut away as shown in Fig. III, the tension and agitating force being supplied by the coil springs. In the form shown in Figs. 100



VII and III, the springs are separately and independently adjustable by the set bolts, making the feed-boards separately and independently adjustable in their vibrations, which is one of the principle advantages I claim for my improvement.

In operation the cam 11 acts independently of the rollers and in its revolution causes the springs to vibrate, which gives vibration to the feed-boards carried thereon.

39,— represents wires or their equivalents, secured to the feed-board and extending up into the discharge pipe and vibrating in the stock represented by 6<sup>a</sup>, with the vibrations of the feed-board prevent clogging.

40,— represents a door or opening in the housing.

Among the principal advantages I claim for my improved feeder, are: First. Simplicity of construction. Second. All the springs and operative parts are preferably placed outside of the housing where they may be readily reached for adjustment or repairs in which case there are no springs inside the housing to break and get out of repair. Third. There are fewer springs and fewer operative parts than in other vibratory feeding devices. Fourth. The independent adjustability of the vibration of the feed boards for different kinds of stock when used on machines handling two kinds of material. Some kinds of stock are sharp and gritty and need but a slight vibration to make them feed, while other kinds are soft and sticky and require greater vibration of the feed boards. With my improvements one kind of stock may be fed to one set of rollers and another kind to the other set of rollers, the feed being accommodated to the stock by adjustment of the stock springs by the set screw 3. Fifth. A perfectly balanced feeder is provided.

Having thus fully described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a feeder for mill rolls the combination of an octagonal cam, a spring adjustably pivoted at one end and adapted to contact at its free end with the cam, and a feed board carried on the free end of the spring, substantially as shown and described.

2. In a feeder for mill rolls, a spring pivoted at one end to a bracket adjustably se-

cured to the housing said spring being adjustable in its bracket by set screws, an inclined feed-board carried on the free end of the spring and a cam operating upon the free end of the spring.

3. In a feeder for mill rolls, a spring for vibrating the feed-board, consisting of a slotted arm pivoted to a bracket adapted to be secured to the housing and adjustable thereon by set screws and adapted to contact with a cam for vibrating the same.

4. In a feeder for mill rolls, a spring having a slotted central portion pivotally attached to the housing, a cam carried on a shaft journaled in the housing and means for adjusting the contact of the spring with the cam.

5. In a feeder for mill rolls, an adjustable spring suitably attached to the housing, a pivoted arm secured to the spring, an inclined feed-board connected with the arm and a cam in contact with the spring.

6. In a feeder for mill rolls a spring adjustably pivoted at one end to the housing set screws to adjust the spring, and a cam operating upon the free end of the spring.

7. In a feeder for mill rolls a spring for vibrating the feed-board, consisting of a pivoted slotted arm and set screws to adjust the vibrations of the arm, said arm being adapted to contact with a cam for vibrating the same.

8. In a feeder for mill rolls the combination of a cam, a slotted spring adjustably pivoted at one end and a feed board carried on the free end of the spring.

9. In a feeder for mill rolls the combination of an adjustable slotted spring pivoted at one end to the housing, a feed board carried on the free end of the spring, and a cam operating on the free end of the spring to vibrate the feed board.

10. In a feeder for mill rolls, the combination of a cam, inclined vibrating feed-boards, springs in contact with the cam upon which the feed-boards are carried, and means in connection with the springs whereby the vibrations of the feed-boards are independently adjustable.

GEORGE WILLIAM COMBS.

Witnesses:

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