

No. 860,128.

PATENTED JULY 16, 1907.

N. B. CONVERSE.  
FEEDER OR CONVEYER.  
APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.

FIG. 1

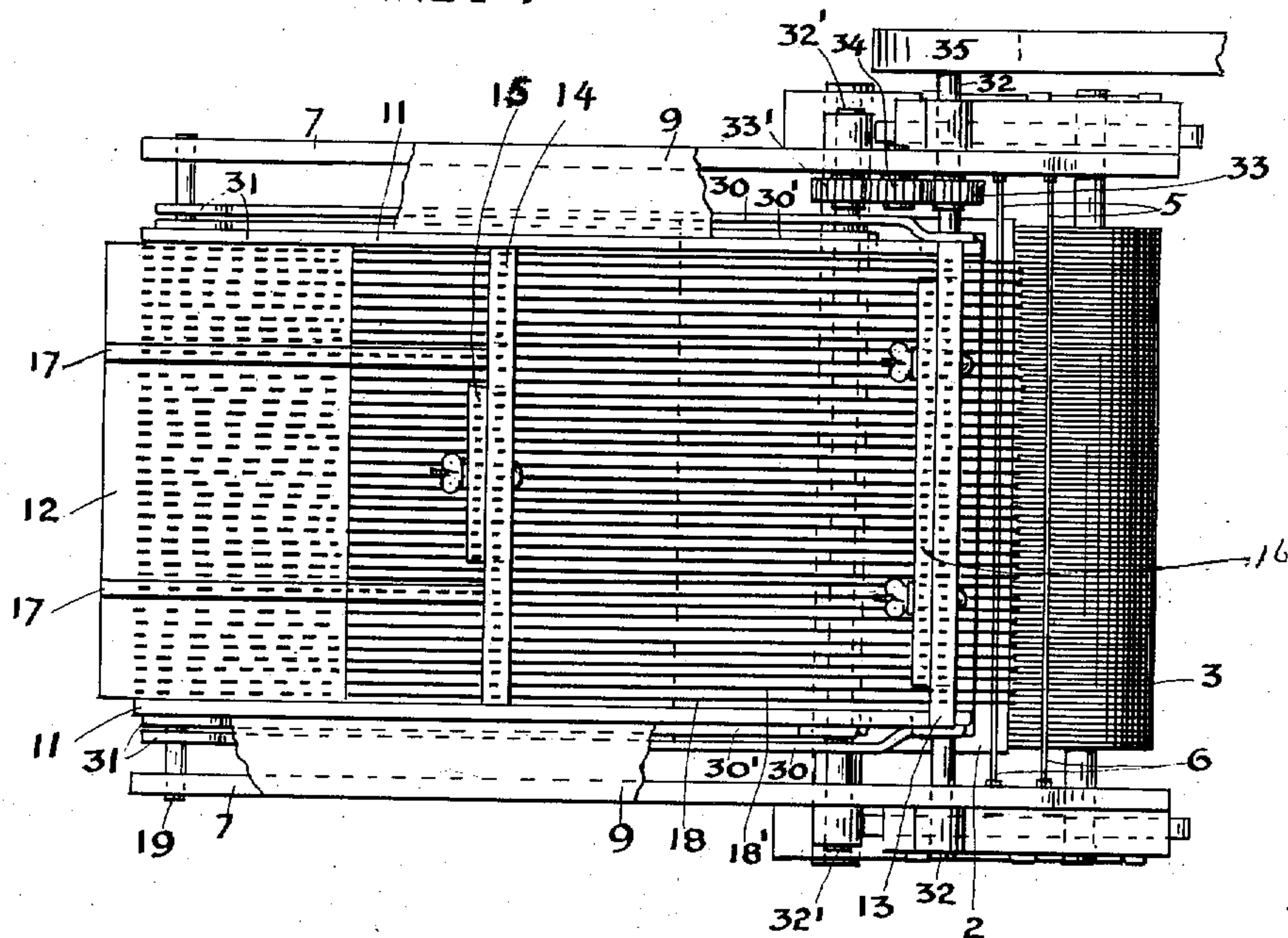


FIG. 2

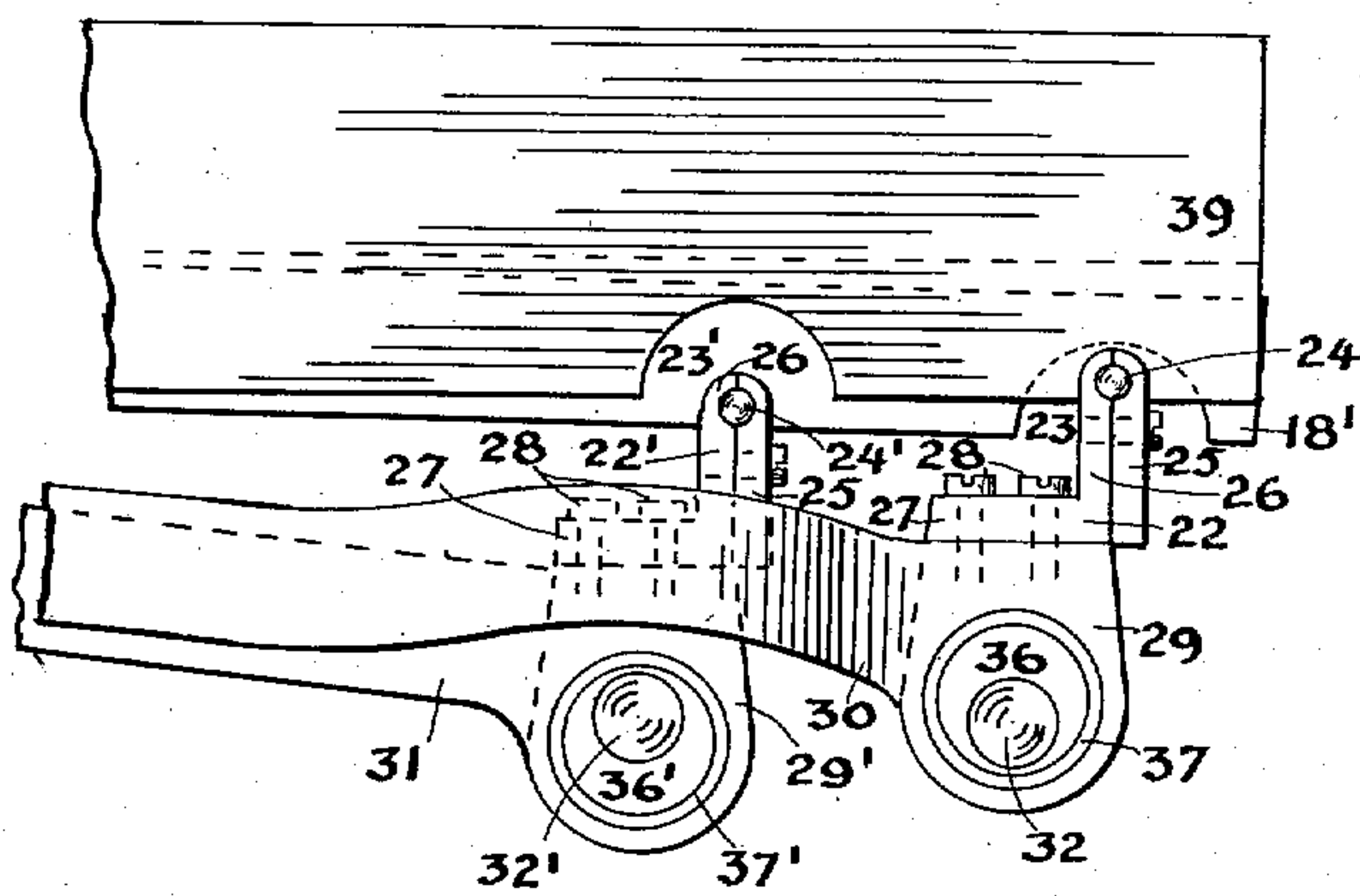
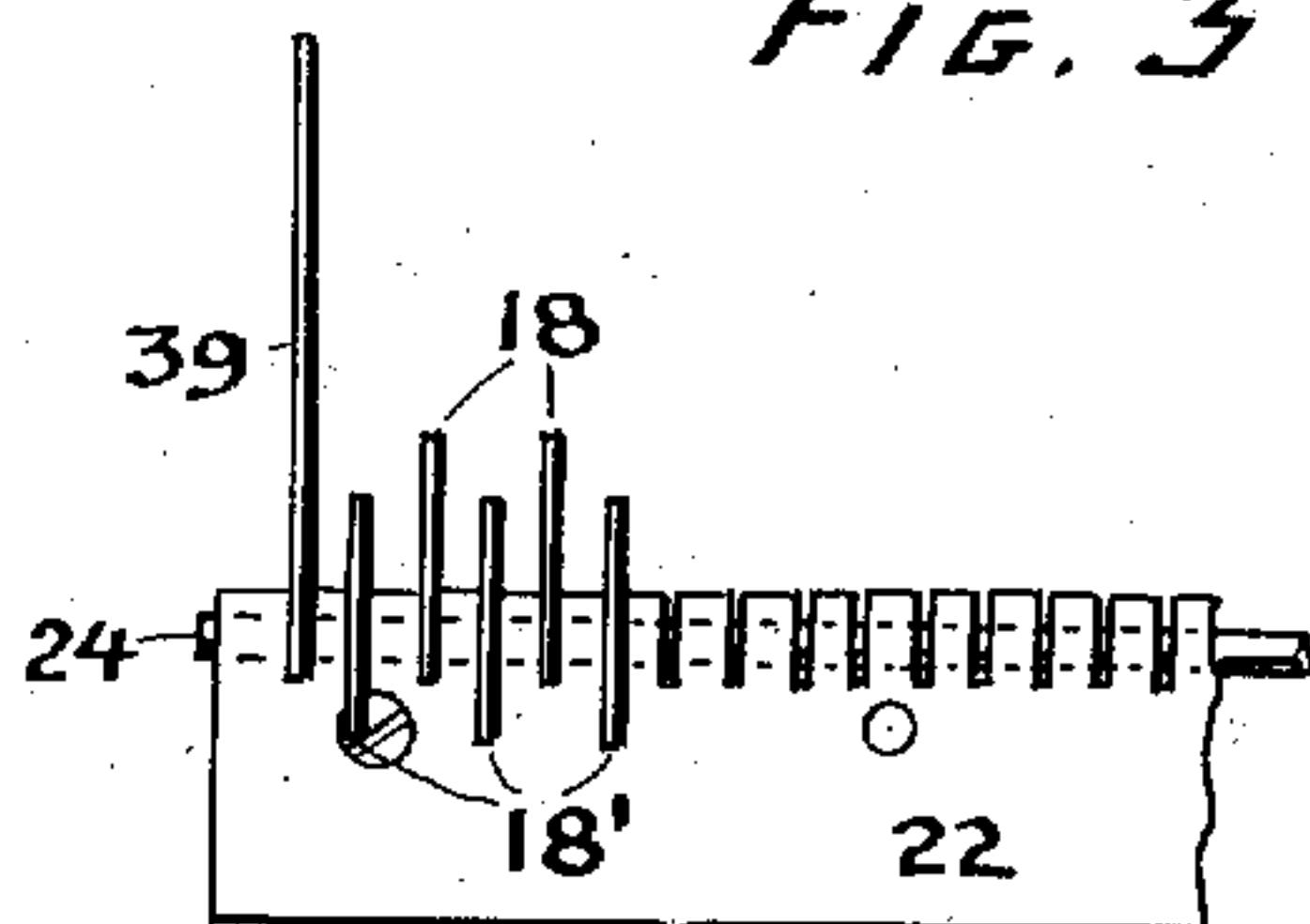


FIG. 3



WITNESSES:

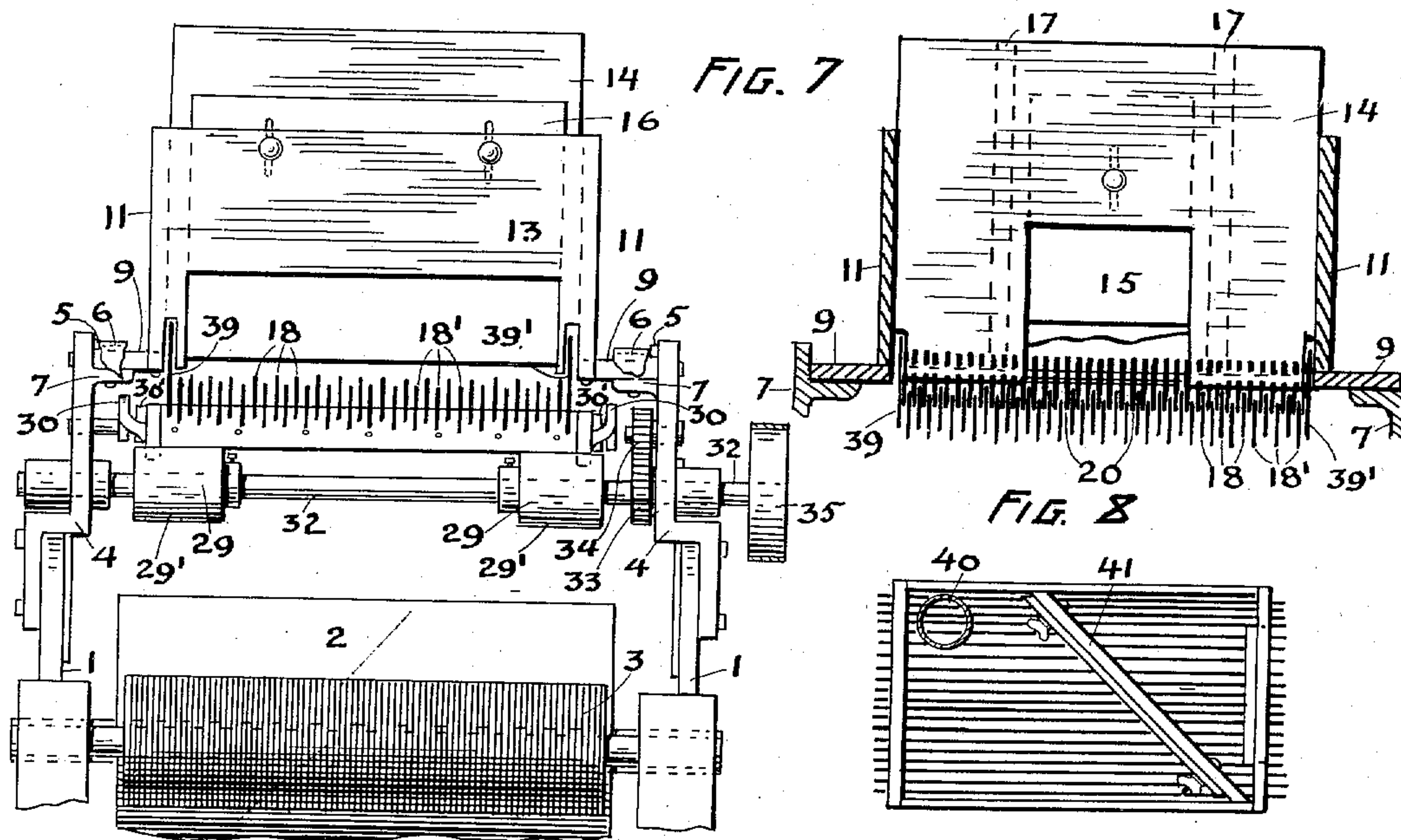
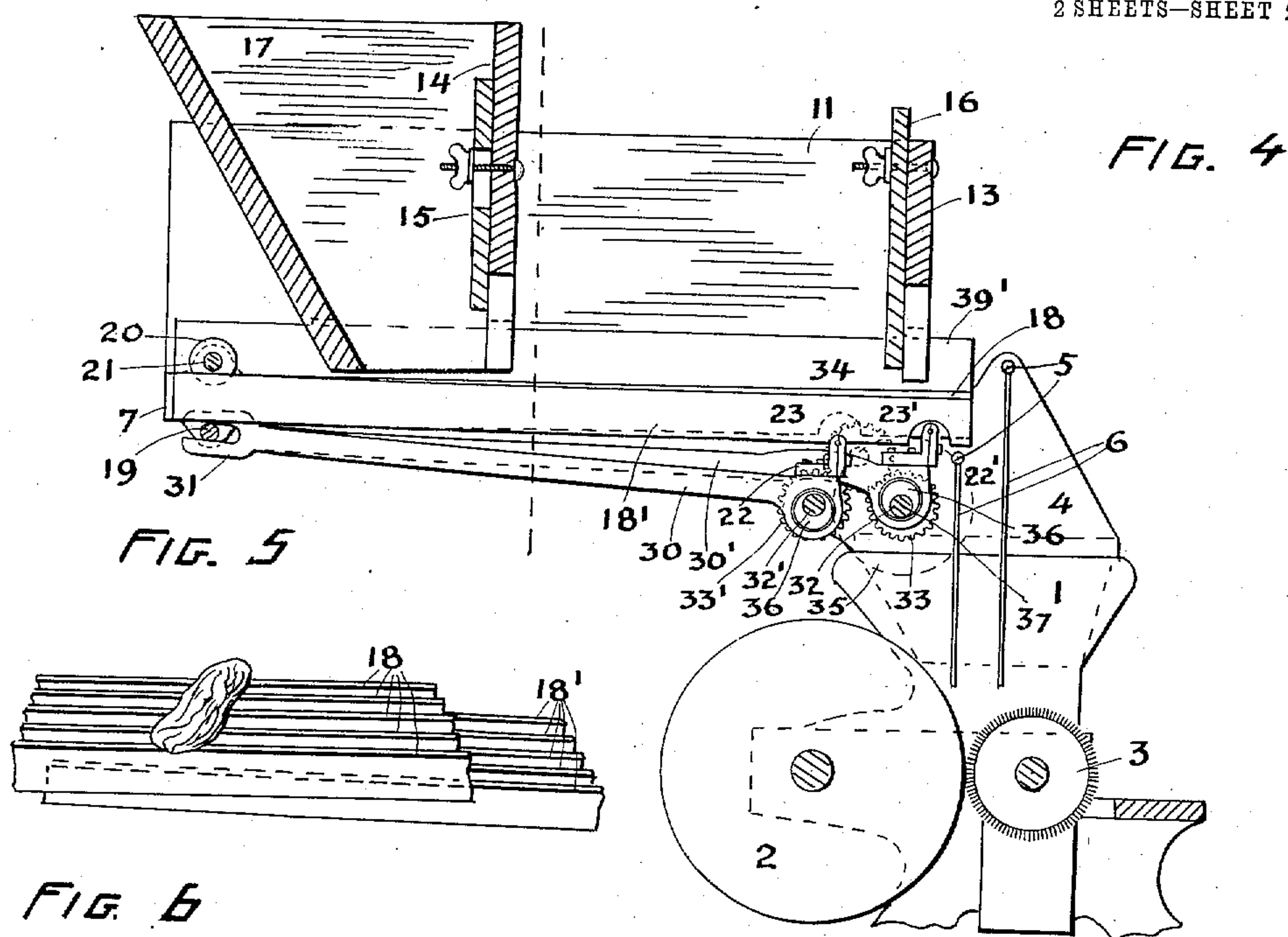
*Russell G. J. J. J.*  
*Leon Boillon*

INVENTOR:

*N. B. Converse*  
By *F. M. Wright,*  
Attorney.

N. B. CONVERSE.  
FEEDER OR CONVEYER.  
APPLICATION FILED NOV. 10, 1904.

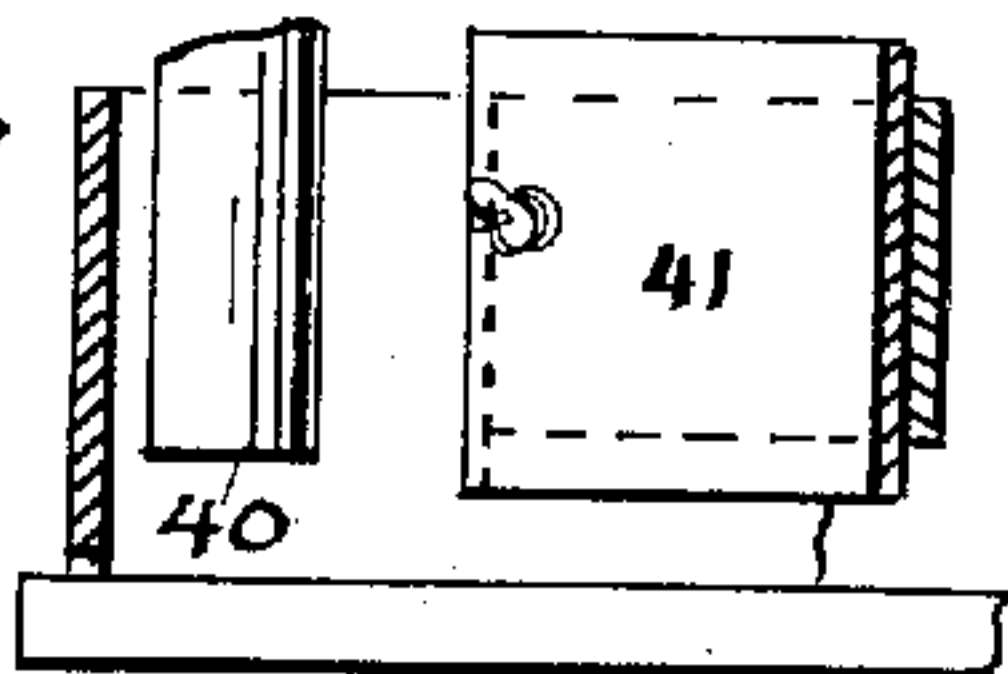
2 SHEETS—SHEET 2.



WITNESSES:

*Charles G. Lyndel*  
*Leon Boillon*

FIG. 9



INVENTOR:

*N. B. Converse*  
*By J. M. Wright*  
*Attorney.*



# UNITED STATES PATENT OFFICE.

NEWTON BOOTH CONVERSE, OF FRESNO, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF AND J. E. DICKINSON, TRUSTEES, OF FRESNO, CALIFORNIA.

## FEEDER OR CONVEYER.

No. 860,128.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed November 10, 1904. Serial No. 232,091.

*To all whom it may concern:*

Be it known that I, NEWTON BOOTH CONVERSE, a citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Feeders or Conveyers, of which the following is a specification.

This invention relates to an improved apparatus for conveying material in a solid form, as in grains, pieces, or lumps of any size, or in a plastic condition, as dough, or plastic rubber, or in fact in any form except that of fine powder or the liquid or gaseous condition. For the purposes of illustration, I have herein shown the apparatus as used for feeding raisins to a raisin seeding machine; this, however, is only one of a large number of uses to which the invention may be put.

The object of the invention is to provide a conveyer or feeder which shall feed such material with uniformity and certainty.

It is especially valuable for feeding material of a sticky character, such as raisins after having been sweated for use in a raisin seeding machine.

In the accompanying drawings, Figure 1 is a plan view of the apparatus as used with a raisin seeding machine; Fig. 2 is an enlarged side view of the eccentric and the ends of the bars operated thereby; Fig. 3 is a broken side view of one of the supports for the blades; Fig. 4 is a longitudinal section of the apparatus; Fig. 5 is a broken perspective view of some of the blades; Fig. 6 is an end view of the apparatus certain parts being broken away; Fig. 7 is a cross section of Fig. 1 taken through the hopper; Fig. 8 is a detail plan view of a modified form of feeding box; Fig. 9 is a vertical section of the same.

Referring to the drawing, 1 represents the side pieces of the frame of a raisin seeding machine, between which are mounted the roll 2 and the tooth carrying cylinder 3 revolving against said roll. On said side pieces are secured the frame castings 4 of the conveyer or feeder, said castings supporting cross bars 5 from which are suspended aprons 6 (broken away in Fig. 6) between which the raisins are fed to the raisin seeding machine. Said frame castings have inwardly extending ledges 7, upon which rest, and are secured, the front ends of the side beams 9. Upon said side beams are secured the side walls 11 of the feed box. These side walls are connected at the rear end by a sloping tail-gate 12 and at the front end by a front wall 13. They are also connected in the mediate portion, but somewhat nearer the tail-gate, by a partition 14. Upon said front wall and partition are adjustably supported feed gates 15 and 16, which are raised to a suitable height to permit the raisins or other material to pass underneath. The gate 15, however, does not extend the full width of the box, but only between longitudinal walls 17 which extend from the tail-gate

12 to the partitions 14 and form in the middle of the box a feed hopper narrower than the box, into which hopper the material is fed. The gate 15 then limits the movement of the material from said hopper. The material so fed into the hopper falls upon the upper edges of vertical conveyer blades which are arranged in two sets 18, 18', alternating with each other. The rear ends of these blades rest upon a cross bar 19 and are there spaced from each other by washers 20 carried by a cross bar 21, by which cross bar said conveyer blades are limited as to their upward movement, so that at the rear ends the movement of the blades is confined to a horizontal direction. The outermost blades 39, 39', are higher than the other blades of the two sets.

The front ends of the two sets of blades are supported in vertical slots formed in cross pieces 22, 22', said sets of blades being recessed at their lower edges as shown at 23, 23', to allow of the free movement of each set over the cross piece or support for the other set of blades. Through the two sets of blades pass horizontal rods 24, 24', which also pass through holes extending the whole length of the cross pieces, but for the convenience of forming these long holes the cross pieces are preferably made in two sections 25, 26 secured together by screws. The cross pieces are angular in form having horizontal portions 27 resting on, and secured by screws 28 to lifter blocks 29, 29', extending inwardly from two pairs of side bars 30, 30'. Of these side bars, the inner side bars 30' are straight while the outer side bars 30 are bent inwardly at their ends so as to be brought into alinement at their ends with the inner side bars. The rear ends of the side bars are forked as shown at 31, said forks passing over the bars 19.

32, 32', are transverse rotary shafts having bearings in the sides of the frame of the feeder and having mounted thereon gear wheels 33, 33', meshing with an intermediate gear 34, so that said shafts revolve in the same direction. Motion is communicated to one of the shafts as 33 by means of a pulley 35 thereon driven from any suitable source of power. Said shafts have at their ends eccentrics 36, 36' revolving in suitable eccentric rings 37, 37', in the lifter blocks 29, 29'. As these shafts revolve they impart a rotary motion to the lifter blocks. This rotary motion is communicated to the two sets of blades, so that each part of each blade has a cyclical motion, which is that of a circle at a point immediately above the eccentric and is elliptical for different points along the blade up to the rear end of the blade, when it is that of a motion of reciprocation in a straight line. At every point along the blade, the upper edge of the blade moves forwards during the upper half of its complete movement and rearwards during the lower half. Thus the raisins or other material rest-



ing upon the blades will be advanced by one set of blades during one half of the complete movement thereof and by the other set of blades during the other half, first one set and then the other being uppermost.

5 Any raisin or other material will first rest upon the edges of one set of the blades, namely, the set which is uppermost and will be advanced thereby, and when this set of blades have reached their foremost position they leave the raisin on the edges of the other set of  
10 blades which are now in their rearmost position and are ascending, which latter set then take up the raisin and advance it in their turn. Thus the raisins are constantly advanced in a positive and effective manner, since it is impossible for the raisin or other material to  
15 remain in contact with any part of the blades that are moving rearwardly.

The object of providing a narrow hopper is as follows.

It will be observed that the first gate 15, which allows the escape of the raisins or other material from the hop-  
20 per is raised, to give a much higher opening for the material than the second gate 16 at the end of the conveying mechanism. The height of the opening underneath the gate 15 is made very great compared with the size of the raisin or other material, so that there is no  
25 chance whatever of the material clogging underneath this gate. But on account of the opening being so high, it is necessary to correspondingly restrict the size of the hopper and this is done by making it narrow, so that the quantity of raisins which can escape under-  
30 neath the first gate will not be such as to cause the same to unduly pile up at the opening beneath the second gate. In other words, the first gate is provided to restrict the quantity of raisins or other material that can be supplied to the second gate, but is arranged so  
35 that there shall be no chance of the raisins clogging at said first gate. In the meantime the conveyor spreads out the material so that it arrives at the second gate of a substantially uniform height or thickness. It is to be understood that the form of this first gate is not lim-  
40 ited to that herein shown as any suitable means for restricting the quantity of raisins discharged on to the conveyor blades may be used which will not allow the raisins to clog, as for instance as shown in Figs. 8 and 9 a pipe 40 extending down to a short distance above the  
45 conveyor blades and discharging thereon, the raisins or other material flowing out the bottom end of the pipe as fast as the raisins upon the conveyor blades around the end of the pipe are removed therefrom. In the same figure I have shown a modified first gate 41 ar-  
50 ranged obliquely to the feeding blades, the better to distribute the material thereon.

While I have herein shown the apparatus as used in communication with a seeding machine, it is to be understood that my invention is by no means limited  
55 thereto, but may be used for any purpose for which it is found desirable.

I claim:—

1. In an apparatus of the character described, the combination of two sets of alternating conveyer blades, spacing washers interposed between said blades intermediately 60 of the ends thereof and means for giving alternately to the forward ends of the blades of the two sets circular motion in the same direction, the rear ends being restricted to reciprocate in a horizontal direction, substantially as described. 65

2. In an apparatus of the character described, the combination of two sets of alternating conveyer blades, spacing washers interposed between said blades intermediately 70 of the ends thereof revolving shafts, eccentrics thereon, respectively connected to the blades of the two sets and extending from their shafts in diametrically opposite directions, whereby the portions of the blades severally connected to the eccentrics are alternately given a forward movement at a higher elevation than the blades of the other set, and means for restricting the rear ends of the 75 blades to a horizontal reciprocation, substantially as described.

3. In an apparatus of the character described, the combination of two sets of alternating conveyer blades, cross pieces having slots in which the forward ends of the 80 blades are respectively secured, eccentrics operatively connected to said cross pieces, and shafts for operating said eccentrics, whereby the two sets of blades are alternately moved forwards and are at the same time uppermost, substantially as described. 85

4. In an apparatus of the character described, the combination of two sets of alternating conveyer blades, cross pieces having slots in which the forward ends of the 90 blades are respectively secured, eccentrics operatively connected to said cross pieces, shafts for operating said eccentrics, whereby the two sets of blades are alternately moved forwards and are at the same time uppermost, and transverse bars between which the rear ends of the blades of both sets are confined whereby the motion is restricted to a horizontal reciprocation, substantially as described. 95

5. In combination with conveying means, a feed box confining the material over said conveying means, a hopper into which the material is fed on to the conveying means, a feed gate between the hopper and the feed box, the hopper being of less width than the feed box, and a 100 second gate at the end of the feed box having a lower opening than that of the first feed gate, substantially as described.

6. In an apparatus of the character described, the combination of two sets of conveyer blades, a cross piece having vertical slots to receive the front ends of each set of 105 blades, said blades being recessed at their lower edges to allow a free movement over the cross piece for the other set of blades, and means for moving said cross pieces alternately to advance the corresponding set of blades, substantially as described. 110

7. In an apparatus of the character described, the combination of two sets of alternating conveyer blades, cross pieces having vertical slots in which the front ends of the 115 two sets of blades are supported, horizontal rods passing through the two sets of blades and through holes extending the whole length of the cross pieces, and means for imparting alternating circular motions to said cross pieces, substantially as described.

In witness whereof I have hereunto set my hand in the 120 presence of two subscribing witnesses.

NEWTON BOOTH CONVERSE.

Witnesses:

L. B. HAYHURST,  
MILES WALLACE.