

No. 635,406.

Patented Oct. 24, 1899.

C. B. SPEAKS.
POTATO GRADING MACHINE.

(Application filed Feb. 17, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

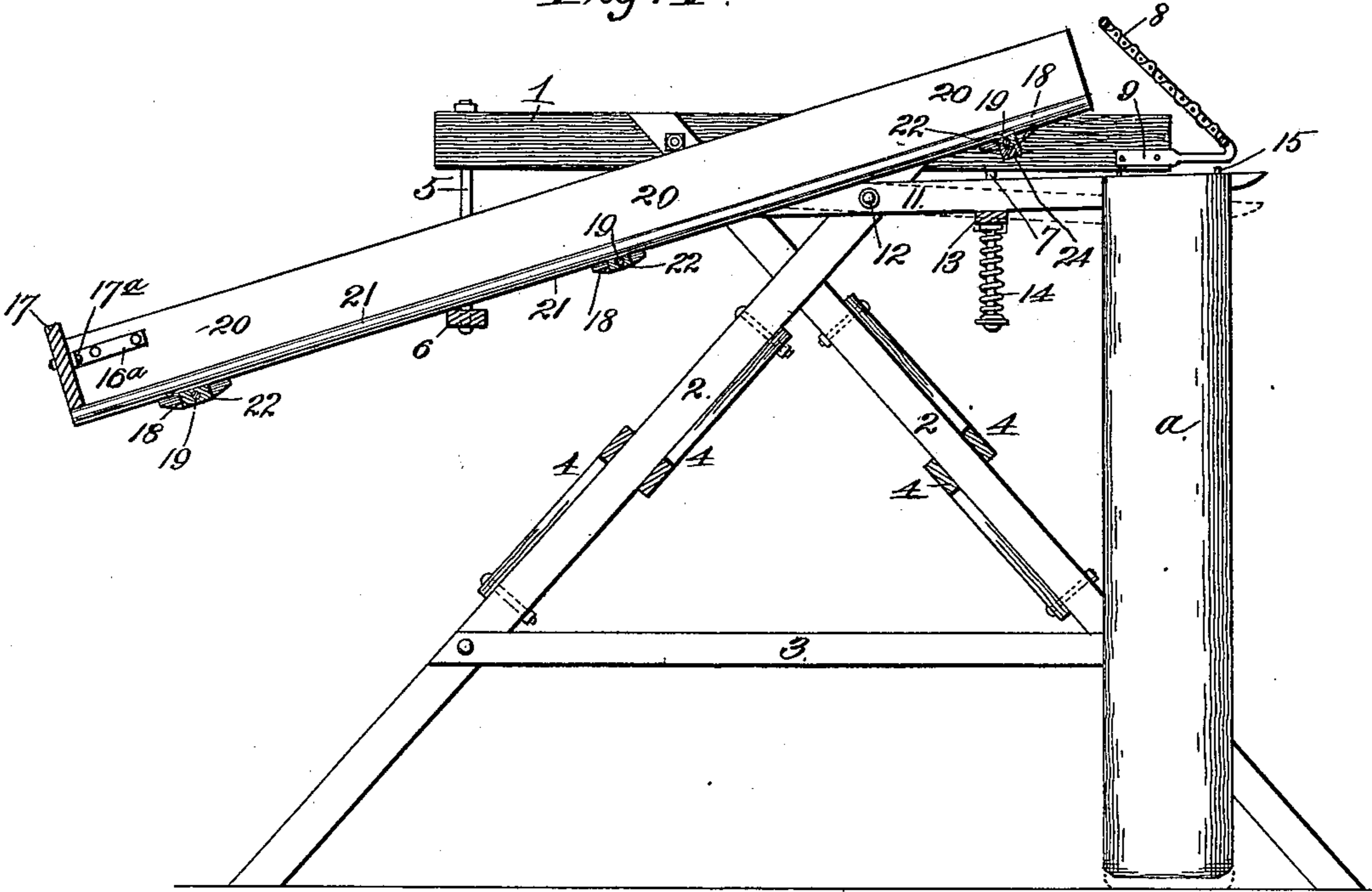
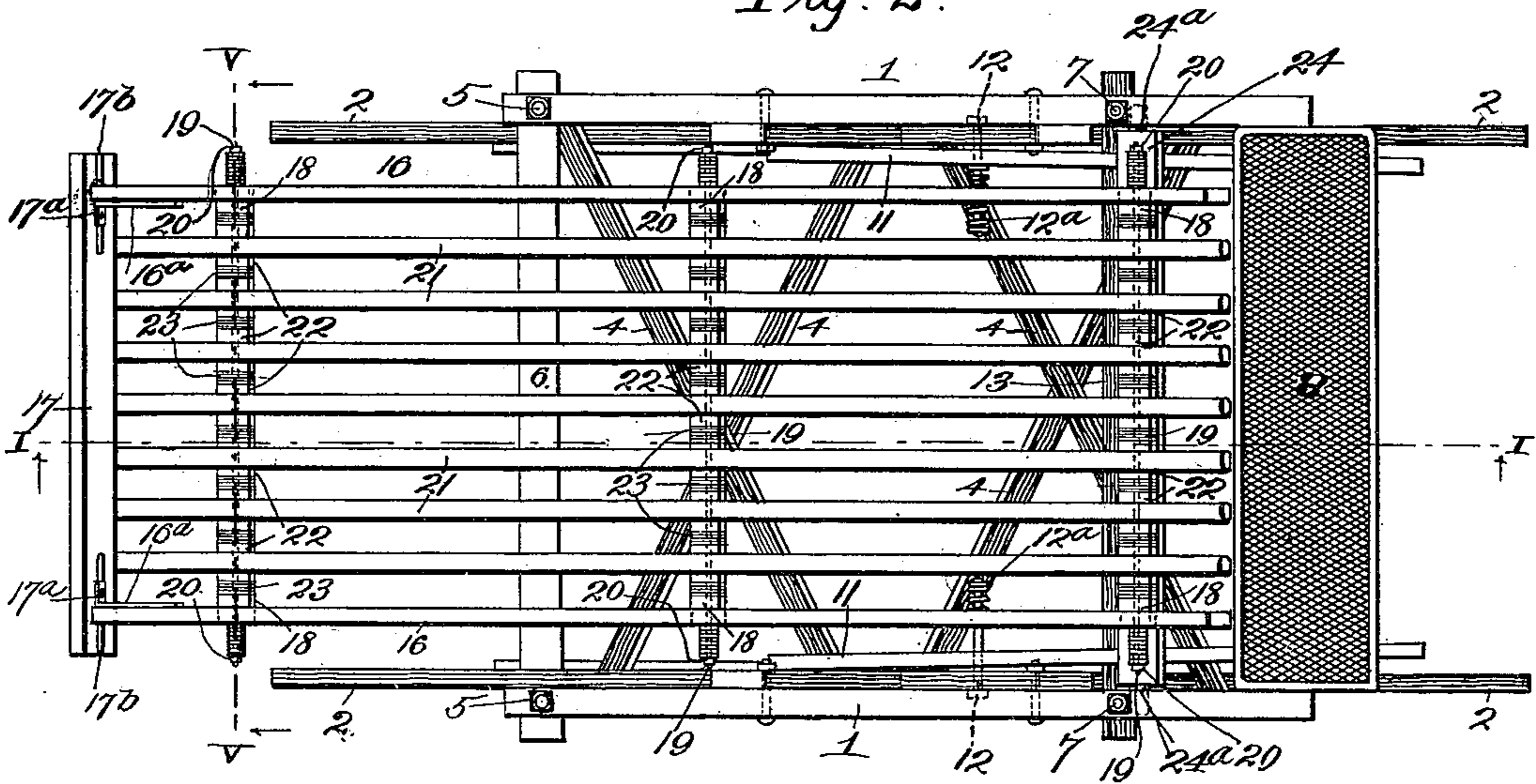


Fig. 2.



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Fig. 3.

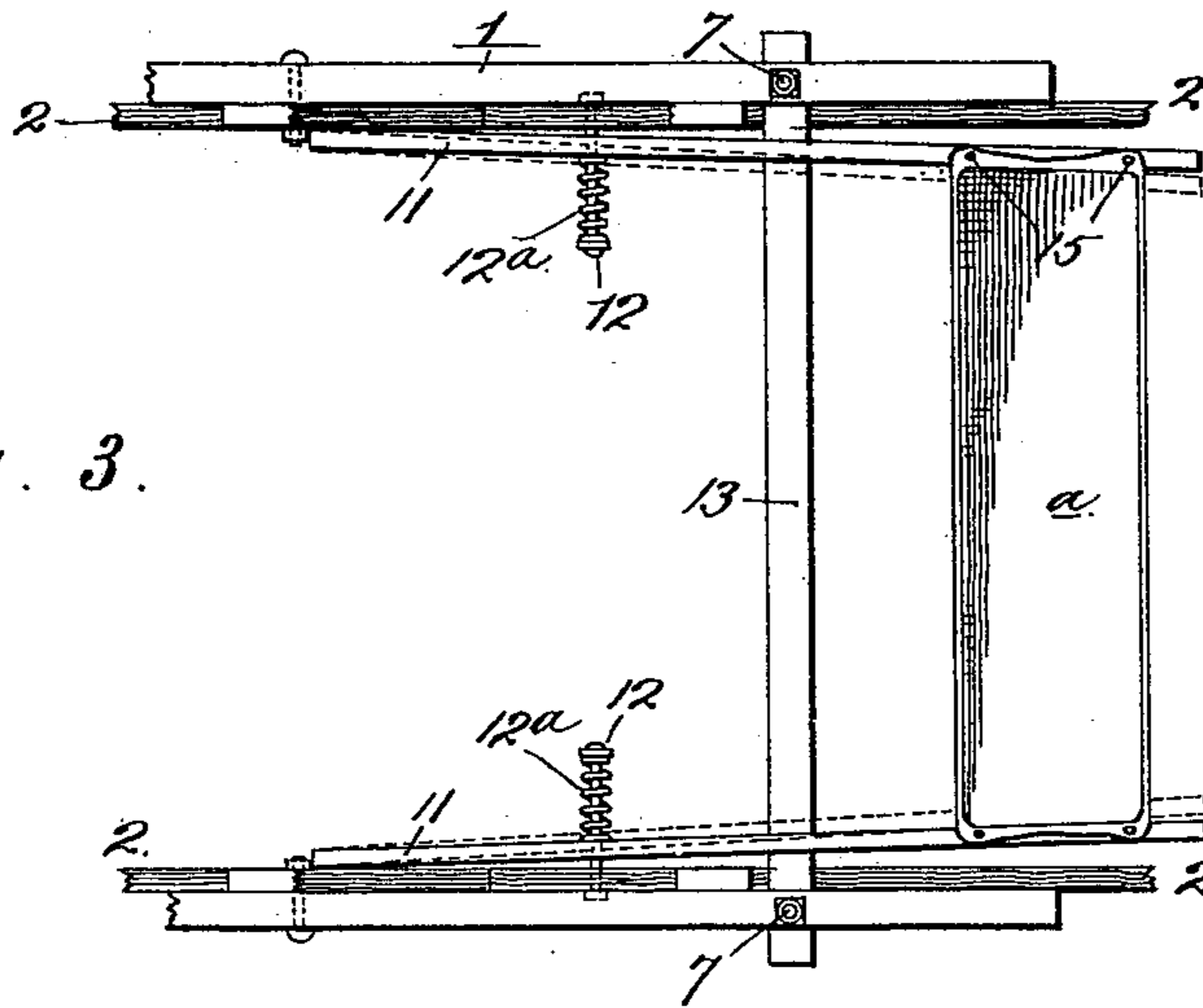


Fig. 4.

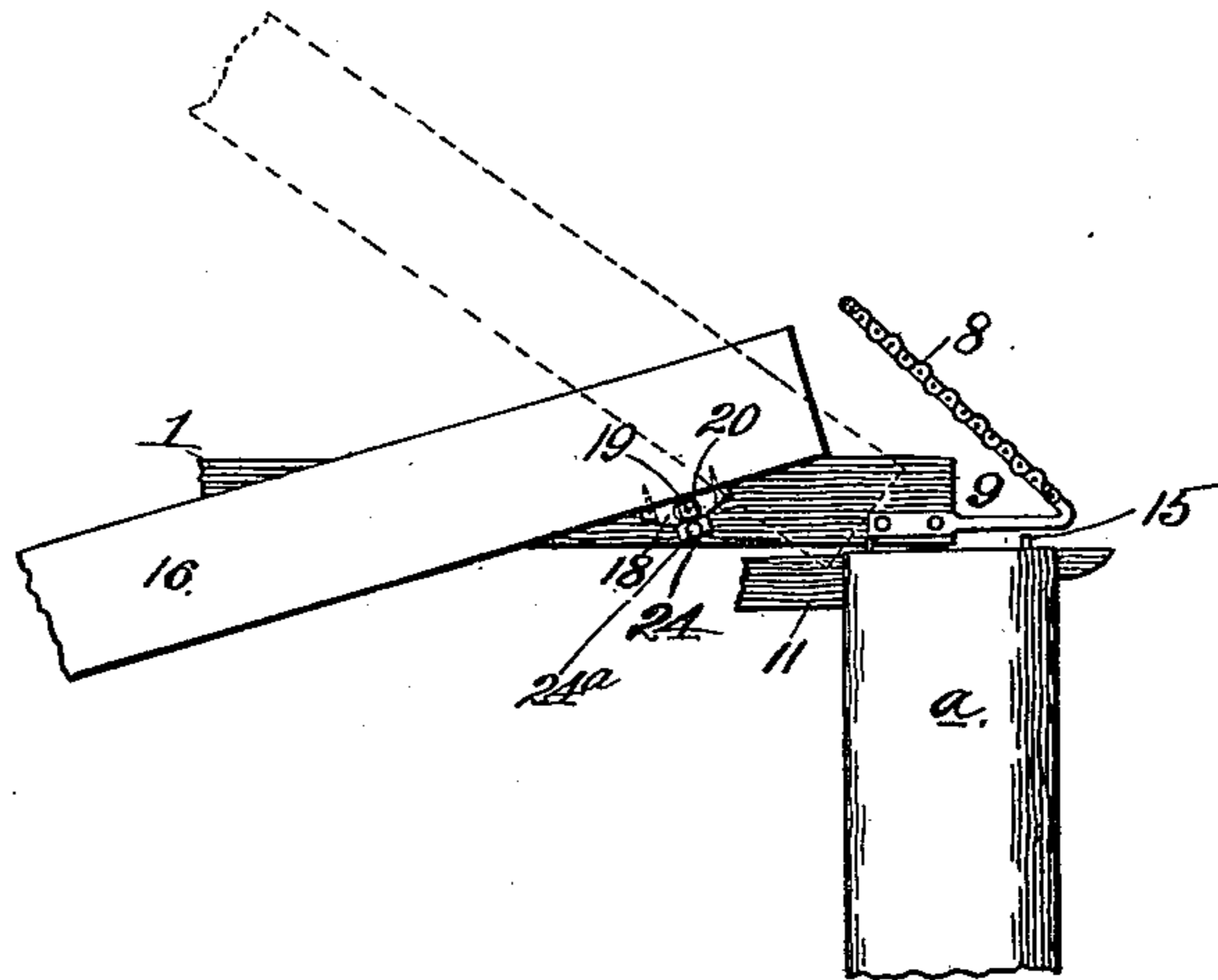
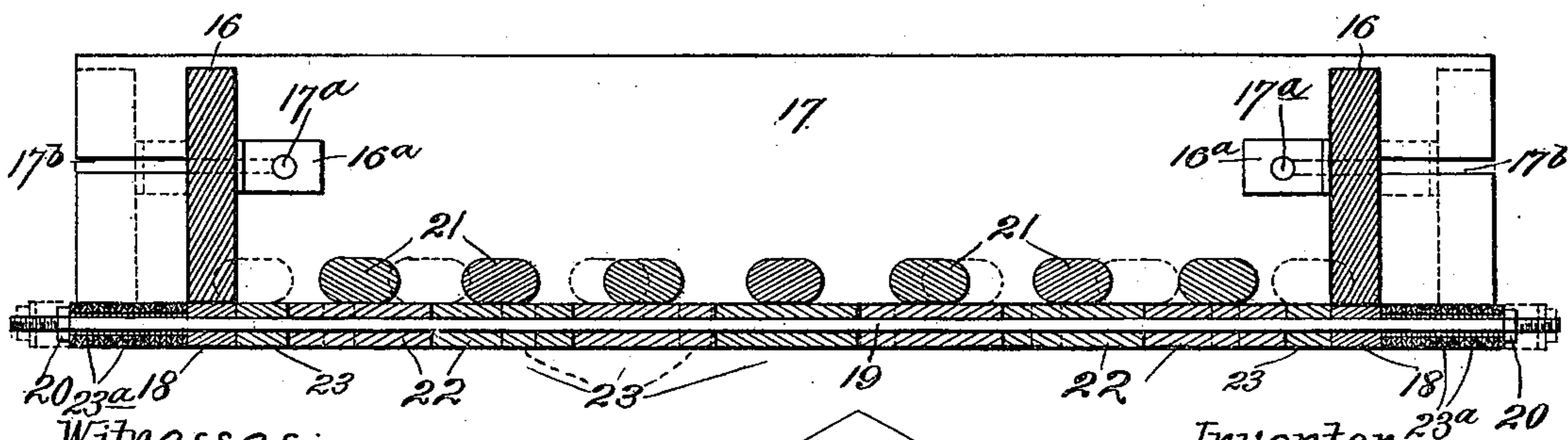


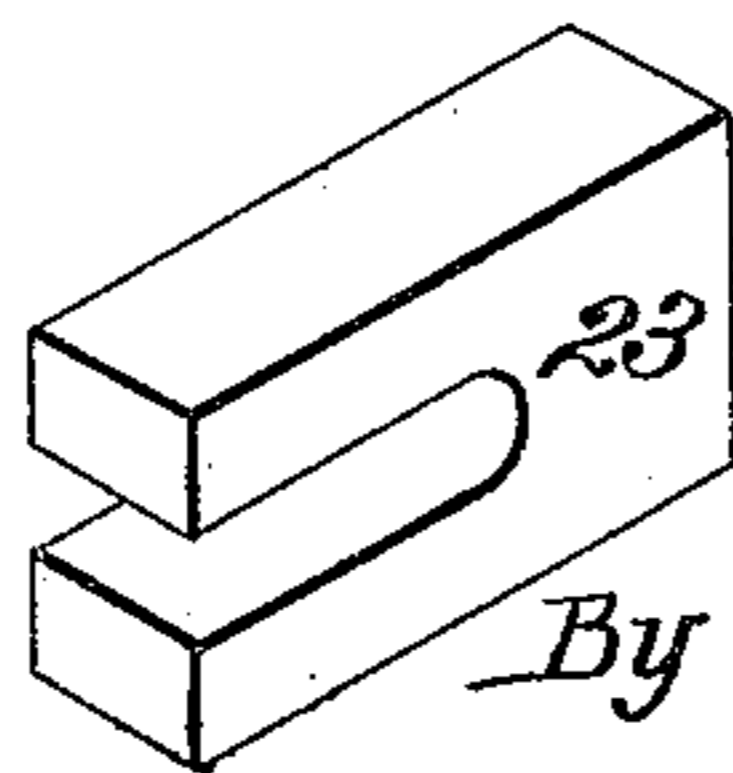
Fig. 5.



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Fig. 6.



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UNITED STATES PATENT OFFICE.

CORNELIUS BARRETT SPEAKS, OF WEAVER, KANSAS.

POTATO-GRADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 635,406, dated October 24, 1899.

Application filed February 17, 1899. Serial No. 705,936. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS BARRETT SPEAKS, of Weaver, Douglas county, Kansas, have invented certain new and useful Improvements in Potato-Grading Machines, of which the following is a specification.

My invention relates to potato-grading machines, and more particularly to that class wherein is suspended a bag for receiving the potatoes as graded and the grader proper is tilted by hand in one direction to separate the dirt and smaller potatoes from those of larger size and in the other direction to discharge the remaining potatoes into the bag; and my object is to produce a machine of this character which is easily operated and is of strong and durable construction and which can be manufactured and sold at a comparatively small cost.

With this object in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that it may be fully understood I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 represents a vertical section of a potato-grading machine embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a plan view to illustrate particularly the bag-supporting mechanism. Fig. 4 is a side view to illustrate the position of the table for insuring the deposit of the unsorted potatoes upon the grader. Fig. 5 is an enlarged cross-section of the grader proper. Fig. 6 is a detail perspective view of a spacing-block used in the machine.

In the said drawings, 1 designates a pair of parallel side bars mounted upon intersecting legs 2, which are braced by longitudinal bars 3 and by intersecting cross-bars 4. Secured to and depending from the rear ends of bars 1 are rods 5, and 6 designates a transverse bar or support carried by said depending rods. A similar pair of vertical rods 7 depend from side bars 1 a suitable distance from their front ends, for a purpose which will be hereinafter explained.

8 designates an inclined screen overhanging the mouth of the bag (to be hereinafter referred to) and provided with arms 9, secured to the side bars 1 of the frame. Said

screen permits the operator to observe the contents of the bag and also serves to guide the potatoes therein as they are discharged from the grader, to be hereinafter described.

11 designates a pair of bars arranged at the inner side of the supporting-legs and pivoted upon bolts 12, secured to certain of said legs. By this disposition of the parts the bars 11 are permitted to operate vertically, and in order that they may also operate laterally the holes through which bolts 12 extend are considerably larger than the diameters of said bolts. The bars are, however, held with yielding pressure squarely up against the legs of the machine by means of expansive springs 12^a, mounted upon bolts 12 and bearing against the heads of the latter and the inner sides of said bars, as shown clearly in Fig. 3. By this arrangement it is obvious that the person in charge may grasp the front ends of the bars and force them inwardly, their rear ends fulcruming against certain supporting-legs of the framework, as shown clearly by dotted lines in Fig. 3. Said bars rest forward of their pivotal points upon the transverse bar 13, slidingly mounted upon the depending rods 7 and resting upon the spiral expansive springs 14, encircling said rods and bearing at their lower ends upon the heads or enlargements of the rods, as shown clearly in Fig. 1. Said bars at points below the screen 8 are provided with upwardly-projecting pins 15, from which the bag *a* is suspended.

To secure the bag in position with the least inconvenience and greatest despatch, the front ends of bars 11 are pressed inward, as above described, and after the pins are engaged with the bag are released and are pressed toward their original position by springs 12^a, thereby distending the mouth of the bag to its fullest extent. The springs 14 are of sufficient power to keep the bag stretched to its fullest extent, so that it may be filled to its utmost capacity. The weight of the filled bag, however, does not entirely compress the springs, as they must be capable and susceptible of further compression in order that the removal of the filled bag may be accomplished without injury and expeditiously.

Referring now to the grader proper, where- by the "culls" and dirt are separated from

the potatoes, 16 designates a pair of parallel side bars, which are connected at their rear ends by an end bar 17. The connection is adjustable and is established through the medium of angle-brackets 16^a, carried by side bars 16, and bolts 17^a, carried by said brackets and extending through longitudinal slots 17^b in the ends of the end bar. By this arrangement it is obvious that the width of the grader or separator may be varied.

The side bars 16 near their ends and about midway of their length are provided with the blocks 18, those at opposite sides being connected by cross-rods 19, having threaded ends engaged by nuts 20.

The bottom of the grader or separator is of skeleton form, consisting simply of a series of parallel rods 21, extending longitudinally of the machine and nailed or otherwise reliably secured to the blocks 22, mounted slidably on said rods 19.

When the machine is arranged to discharge through the grader only the smallest grade of potatoes, the sides 16 are moved to the inner side of slots 17^b and the blocks 22 fit end to end, a narrow bifurcated spacing-block 23 being interposed between the sides of the grader and the endmost blocks to insure a uniform width of grading-spaces, and washers 23^a are fitted on the ends of rods 19 to fill in the space between the blocks 18 and the clamping-nuts 20. This arrangement of course obviates the necessity of having a long threaded portion and screwing the nuts clear up to blocks 18.

If more space is desired between rods 21, the sides 16 are moved outward the requisite distance and a block 23 fitted between each pair of blocks 22 by causing the rod to enter the bifurcations of the blocks, this being accomplished, of course, by sliding the blocks 22 apart sufficiently to receive the spacing-block between them. Of course in this case fewer washers 23^a are needed. When the machine is to grade potatoes of the largest size, the sides 16 are moved to the outer ends of slots 17^b and two blocks 23 inserted between each pair of blocks 22. In this case the use of one washer only is desirable. Thus it will be seen that the distance between rods 21 is regulated at the will of the operator. The adjustment of said rods by means of blocks 23 is indicated by dotted lines, Fig. 5.

24 designates a cross-bar secured firmly to the foremost pair of blocks 18 and pivoted at its ends, as at 24^a, in the side bars 1, so as to constitute a pivotal support for the grader or separator, and owing to the fact that the rear end is the heavier the grader or separator naturally assumes the position shown in Fig. 1, resting upon the shelf or support 6 with its upper or open end adjacent to the rear edge of the screen 8 hereinbefore described.

With the parts thus constructed and arranged it is obvious that it would be practically impossible for the person engaged in handling the uncultured potatoes to pour them

directly into the bag, because of the interposed screen, and owing to the fact that the operator can see through the screen without difficulty he can always tell whether the bag is full or not and, if full, replace it with an empty one before manipulating the machine. The potatoes as they come from the field are poured into the grader or separator, and as they roll toward the lower end of the same most of the culls and dirt will drop through between the rods 21. The attendant then grasps the grader and swings it pivotally to the position shown by dotted lines in Fig. 4, and thereby causes the potatoes to roll forward down the grader and into the bag suspended from the yieldingly-supported bars 11. In this forward movement of the potatoes the remaining culls escape between rods 21, as will be readily understood. After all the potatoes are discharged from the grader or separator the latter is lowered to its original position.

In order to remove the bag *a* from the bars 11 without injury and with ease and despatch, the attendant depresses the front ends of said bars until the weight of the bag is mainly supported upon the ground. He then can easily disengage the bag from the pins 15, as will be readily understood.

From the above description it will be apparent that I have produced a potato-grading machine which is of strong and durable construction, of light weight, and therefore conveniently portable, so that it may be conveyed to the field and the potatoes graded, if desired, as they are removed from the ground. It is to be understood also that I reserve the right to make all changes that properly fall within the spirit and scope of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a potato-grading machine, a suitable framework provided with depending rods having heads or attachments at their lower ends, a spring-supported bar mounted upon said rods, a pair of bars pivoted to the framework and resting in advance of their pivotal points upon said spring-supported bar and bearing at their rear ends against the framework, springs which tend to hold the front ends of said bars apart, and bag-supporting attachments at the front ends of said bars, substantially as described.

2. In a potato-grading machine, a grader comprising, an end wall, laterally-adjustable side walls, parallel cross-rods supported at the under side of the side walls, blocks mounted slidably on said rods, longitudinal rods secured to said blocks, bifurcated spacing-blocks adapted to engage said cross-rods between the sliding blocks, and clamping-nuts engaging said cross-rods, substantially as described.

3. In a potato-grading machine, a grader comprising an end wall, laterally-adjustable side walls, blocks secured thereto, cross-rods

carried by said blocks, slide-blocks mounted on said rods, longitudinal rods secured to said blocks, clamping-nuts engaging the rods, and washers upon the rods between the nuts and the blocks secured to the side walls, substantially as described.

4. A potato-grading machine, comprising a suitable framework carrying a cross-bar at one end, a stationary inclined screen at the other, and a mechanism for supporting a bag vertically below said screen, in combination with a grader proper pivotally suspended from said framework and resting normally

upon the cross-bar, and having that end adjacent to the cross-bar closed and the other open, the latter registering with the mouth of the bag below the screen when the closed end of the grader is elevated, substantially as described.

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

CORNELIUS BARRETT SPEAKS.

Witnesses:

M. R. REMLEY,
HELEN RODGERS.