

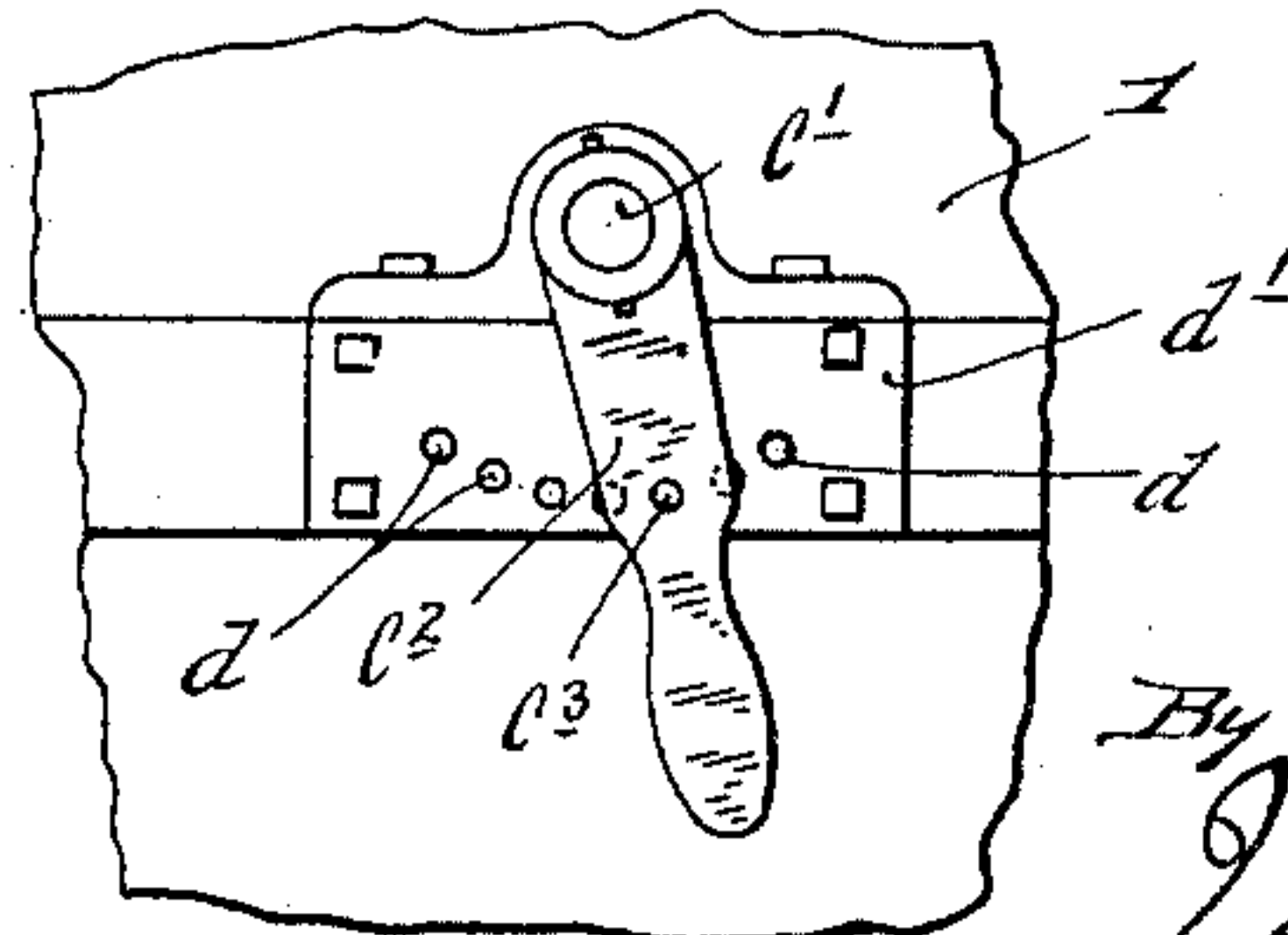
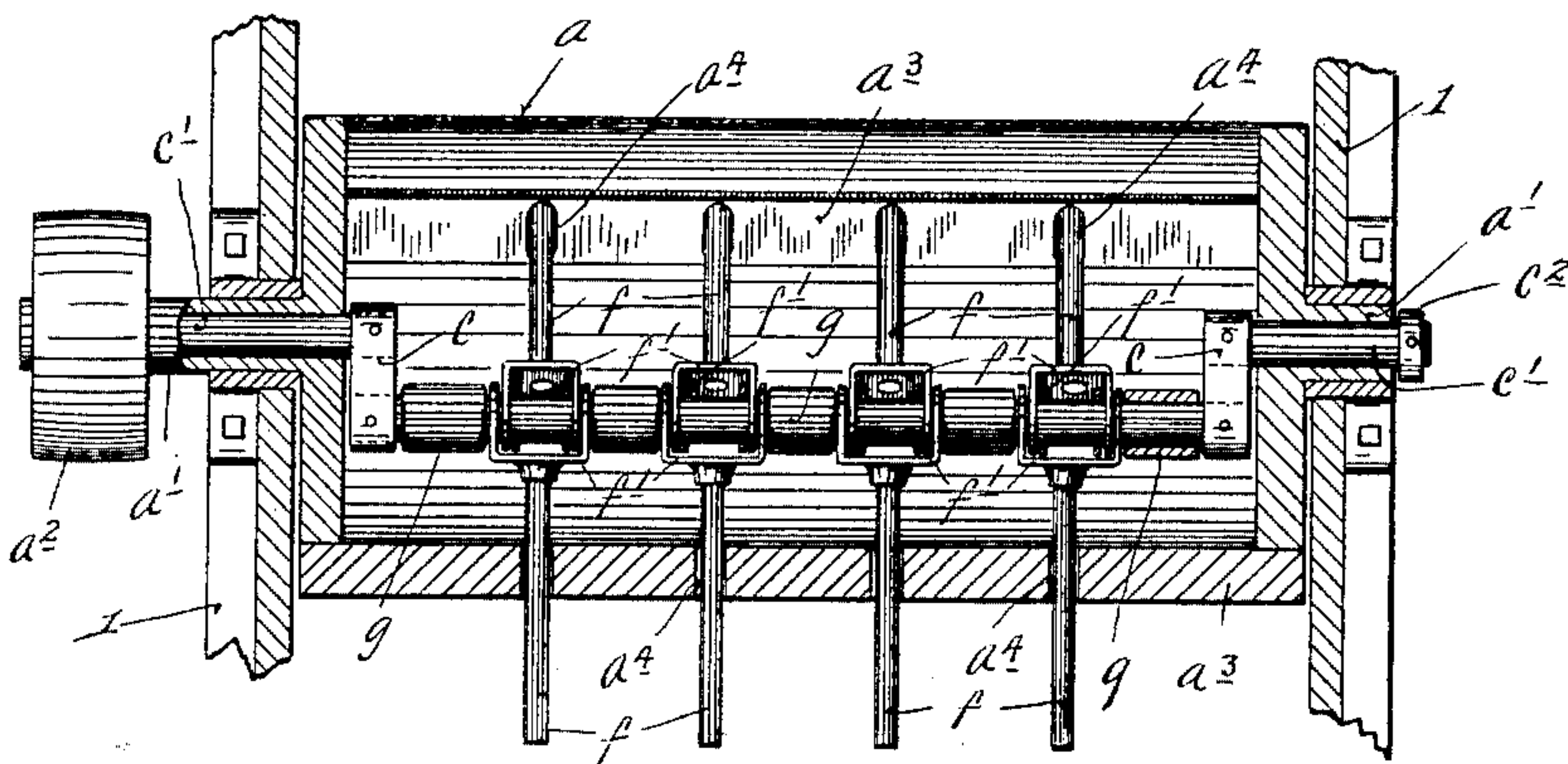
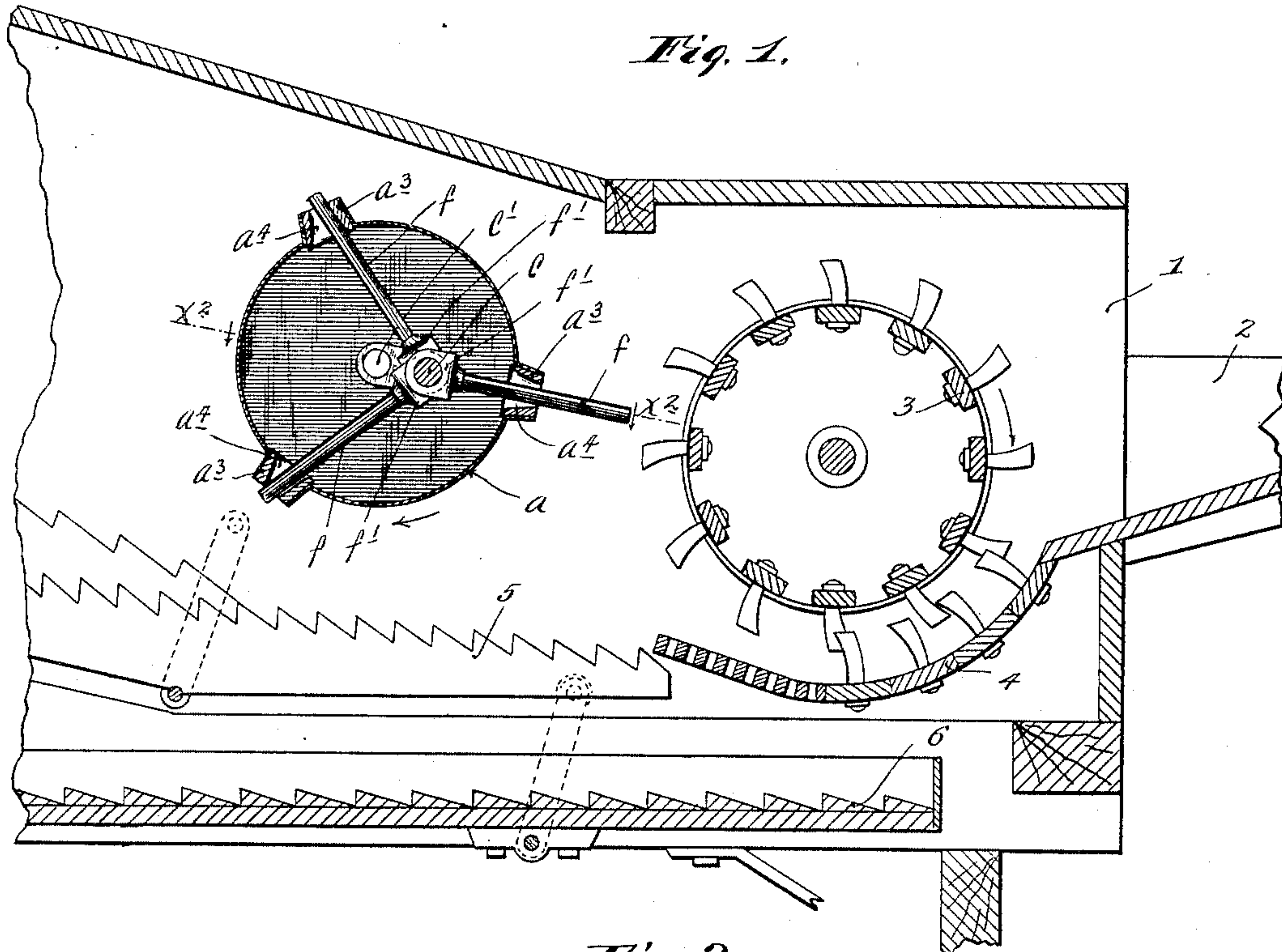
No. 675,418.

Patented June 4, 1901.

J. E. SHAVLAND.
BEATER AND PICKER FOR GRAIN SEPARATORS.

(Application filed Mar. 30, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN E. SHAVLAND, OF ANGUS, MINNESOTA, ASSIGNOR OF TWO-THIRDS
TO J. F. MONTGOMERY AND G. F. BRIGGS, OF SAME PLACE.

BEATER AND PICKER FOR GRAIN-SEPARATORS.

SPECIFICATION forming part of Letters Patent No. 675,418, dated June 4, 1901.

Application filed March 30, 1899. Serial No. 711,057. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SHAVLAND, a citizen of the United States, residing at Angus, in the county of Polk and State of Minnesota, have invented certain new and useful Improvements in Beaters and Pickers for Grain-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates particularly to grain-separators, and has for its especial object to provide an improved beater which when brought into the proper relation to the threshing-cylinder of a grain-threshing separator is adapted to perform the double function of a grain beater and picker.

To the above ends my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claim.

My invention in its preferred form and arrangement is illustrated in the accompanying drawings. Therein like characters indicate like parts throughout the several views.

Figure 1 is a vertical longitudinal section taken through a portion of an ordinary threshing-machine, the same being provided with my improved beater and picker. Fig. 2 is a transverse section taken on the line $x^2 x^2$ of Fig. 1, and Fig. 3 is a detail view looking at a portion of one side of the separator-frame and showing the means for adjustably securing the crank-shaft portion of my improved device against rotation.

In the illustration given, 1 indicates the case or frame, 2 the delivery-deck, 3 the tooth-threshing cylinder, 4 the toothed concave, 5 the vibrating separating table or rack, and 6 the vibrating grain-pan, of an ordinary threshing-machine or separator.

As illustrated in the accompanying drawings, my improved beater and picker involves a rotary cylindrical drum a , which is suitably mounted on its end trunnions a' , which work in bearings b , suitably secured to the sides of the separator-case 1. One of the trunnions a' of the drum a is extended and provided with a pulley a^2 , over which a power-driven belt (not shown) would run to impart rotary

motion to said drum. At several points—as shown, at three points—spaced equidistant circumferentially of the drum or cylinder a and rigidly secured to the cylindrical shell thereof, are guide-bars a^3 . At various points longitudinally of the cylinder or drum a the bars a^3 are provided with perforations a^4 , which, for a purpose which will hereinafter appear, are round at their outer extremities and are elongated circumferentially of the drum at their inner extremities.

Working within the drum a is a crank-shaft c , the projecting trunnions or end shaft-sections c' of which are mounted in axial seats in the trunnions a' of the said drum. By some suitable means this shaft c c' is to be prevented from turning or rotating with the drum a , and, as shown, this is accomplished by means of an arm or lever c^2 , secured to the projecting end of one of the trunnions or crank-sections c' . This arm c^2 is preferably made light enough so that it may be sprung slightly sidewise or to and from the case 1, and it is provided with a pin c^3 , which is adapted for engagement with any one of a series of perforations d , formed in the plate d' , rigidly secured to the side of the case 1. By this device the crank-shaft may be set and held in different adjustments circumferentially of the rotary drum a .

Working through the perforations or seats a^4 of the guide-bars a^3 and pivoted on the offset inner section of the crank-shaft c c' are three series of plunger-like fingers f . These fingers f are provided with pronged heads f' at their inner ends, and these heads are mounted directly on the said crank-section of the crank-shaft. The three heads of the three fingers or plungers, which stand in line with each other circumferentially of the drum, are made to overlap, as best shown in Fig. 2. Spacing-thimbles g are shown as placed between the sets of heads f' .

It is of course evident that all of the fingers f being of the same length and mounted to rotate on an axis located eccentric to the axis of the drum they will be projected or extended outward from the drum in the direction of the eccentricity of the said crank-shaft and will be drawn inward and turned in a reverse direction. By reference to Fig. 1 it will

be seen that the crank portion of the crank-shaft is turned directly toward the toothed threshing-cylinder 3, and hence it of course follows that the fingers f will be projected from the drum a the greatest distance when turned directly toward the said threshing-cylinder. The beater is so mounted that the fingers f will pass as closely as possible to the cylinder-teeth.

10 In threshing-machines now in general use great difficulty has been experienced in getting the beaters or pickers to carry away the straw delivered to them by the threshing-cylinders fast enough to prevent overaccumula-

15 tions behind the threshing-cylinders. By my invention the feeding capacity of the combined picker and beater is made fully equal to that of the threshing-cylinder which delivers thereto, and hence straw will not accumulate back of the cylinder, but will be fed

20 onward as fast as delivered to the combined picker and beater.

In virtue of the relative arrangement of my improved beater with respect to the thresh-

25 ing-cylinder it is caused to perform the additional function of a picker to keep the teeth of the threshing-cylinder from carrying the straw upward and backward toward the front of the separator.

30 The operation of the combined beater and picker above described is obvious, it being understood, of course, that it is mounted to rotate in the same direction as the threshing-cylinder or as indicated by the arrows marked

35 on Fig. 1. The beating fingers or plungers f will, as has already been indicated, be projected to their greatest lengths of projection through the drum a when turned toward the cylinder 3, so that they will exert their greatest

40 efficiency as they are moved downward from this position toward the separating table or rack 5, and while making this movement they will gradually be drawn back into the drum a as the work required of them is decreased.

45 By the time that a particular series of fingers f begins to move upward and away from the

separating-table 5 they will have been drawn nearly or quite within the seats a^4 of the co-operating guide-bar a^3 , so that they will have no tendency whatever to carry straw upward 50 or over the top of the rotary drum a . This action is of course very desirable.

It will of course be understood that the so-called combined "beater and picker" above described is capable of many modifications in 55 construction within the scope of my invention. For example, the rotary part which carries the beating fingers or projections might take various other forms than that of a cylinder and eccentrics or other devices might be substi-

60 tuted for the crank-shaft, which serves to cause the said fingers or projections to rotate on an axis eccentric to the drum or carrier. It will also be understood that the device may be otherwise used than in connection with a

65 threshing-cylinder, though it has a particular and important relation to the action of a threshing-cylinder.

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 70

The combination with the drum or carrier a having the plurality of tapered guide-openings a^4 , of the crank-shaft c, c' , mounted within said carrier a , the eccentric portion of said crank-shaft being separable from the arm por-

75 tions c , the plurality of fingers f working through said perforations a^4 and provided with the bifurcated heads f' overlapping and pivoted on the eccentric portion of said crank-shaft, and the loose spacing-collars g on the

80 said crank-shaft spacing apart the overlapping sets of heads f' , the said heads f' and collars g being removable when the eccentric portion of said crank-shaft is disconnected from one or both of the arm portions, substan-

85 tially as described.

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

JOHN E. SHAVLAND.

Witnesses:

WILLIAM WATTAM,
JACOB JOHNSON.