

(No Model.)

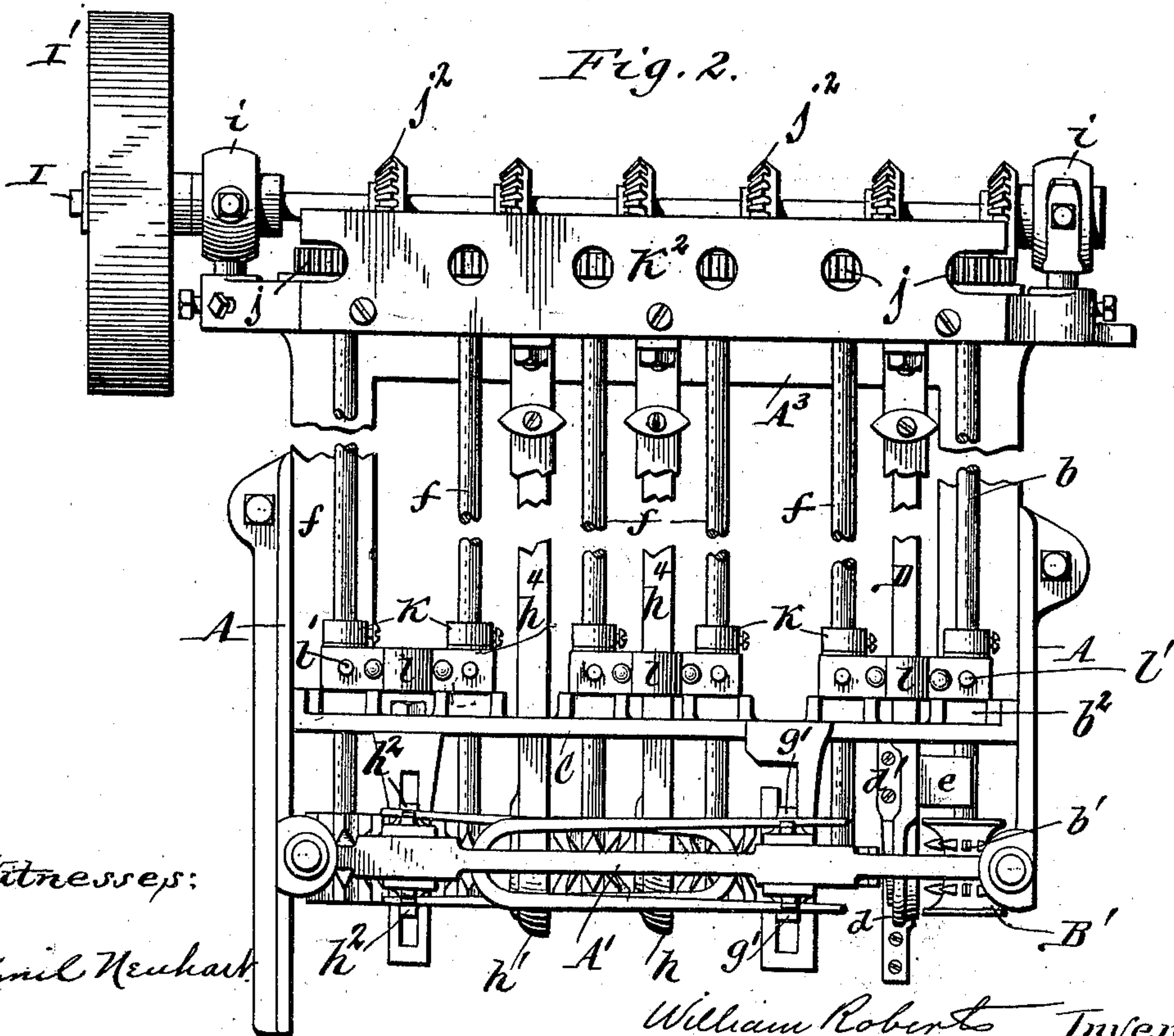
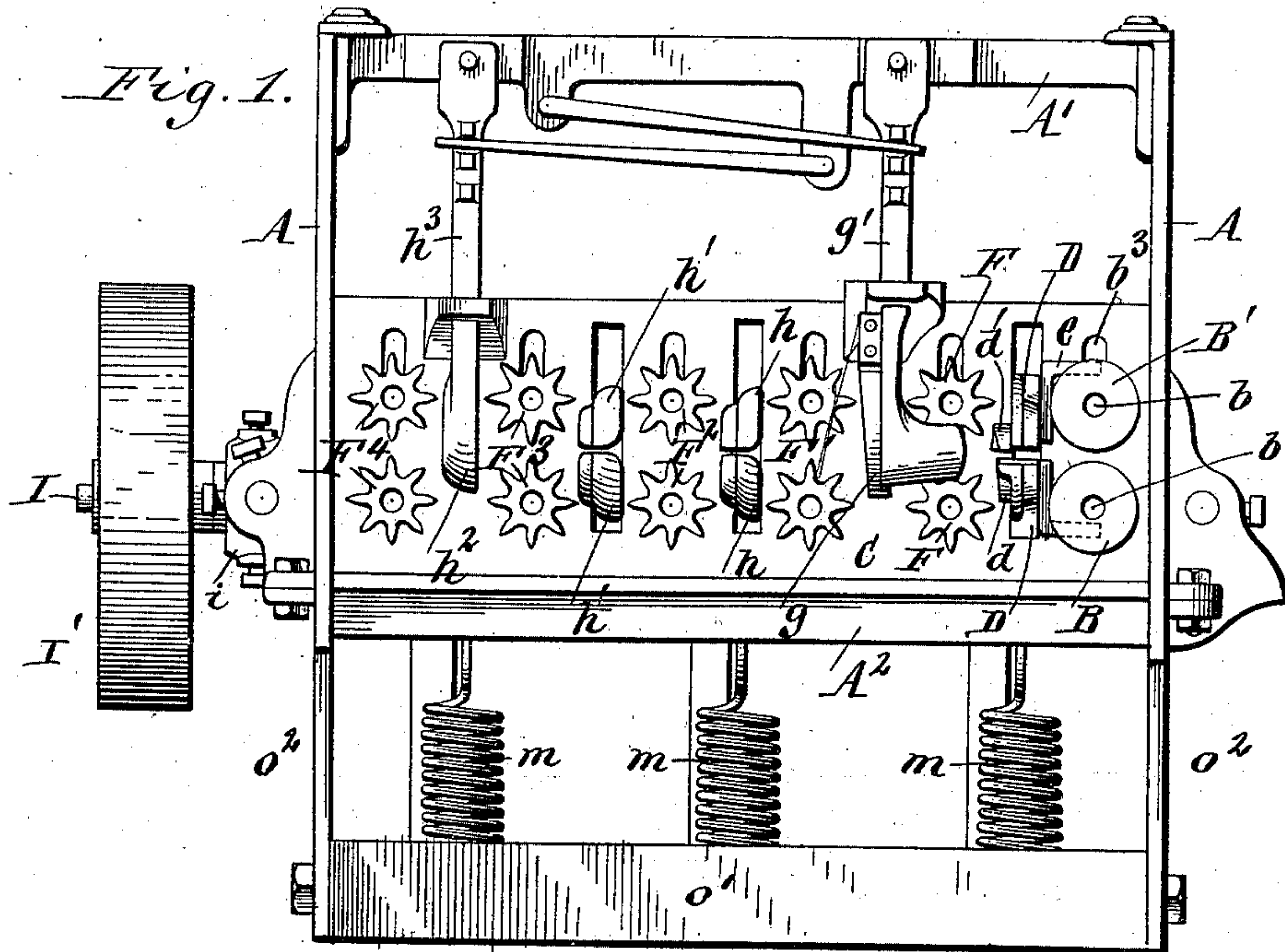
3 Sheets—Sheet 1.

W. ROBERTS.

MACHINE FOR CUTTING GREEN CORN FROM COBS.

No. 561,523.

Patented June 2, 1896.



Witnesses:

Emil Neuhart

F. Gustav Wilhelm.

William Roberts Inventor.

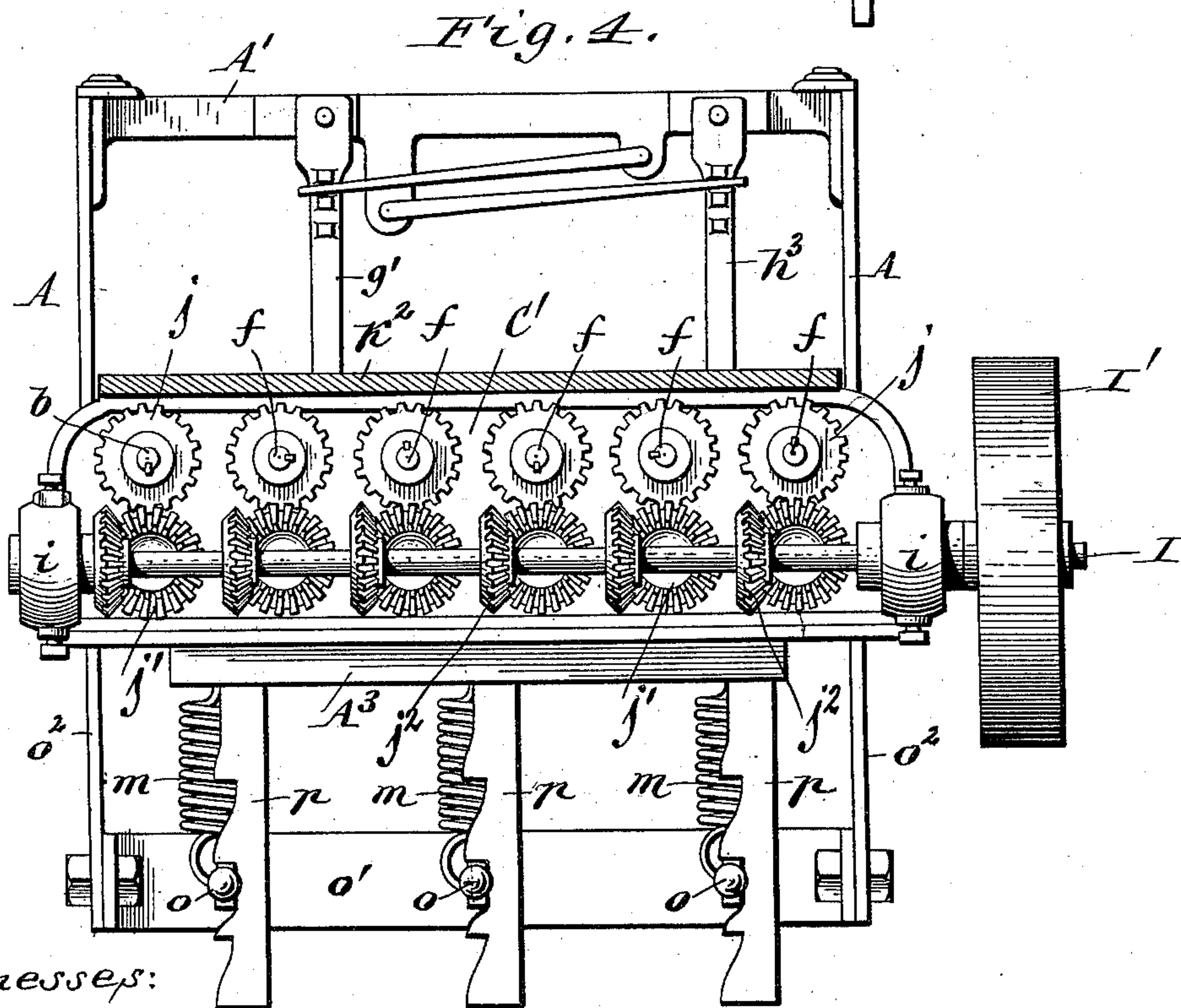
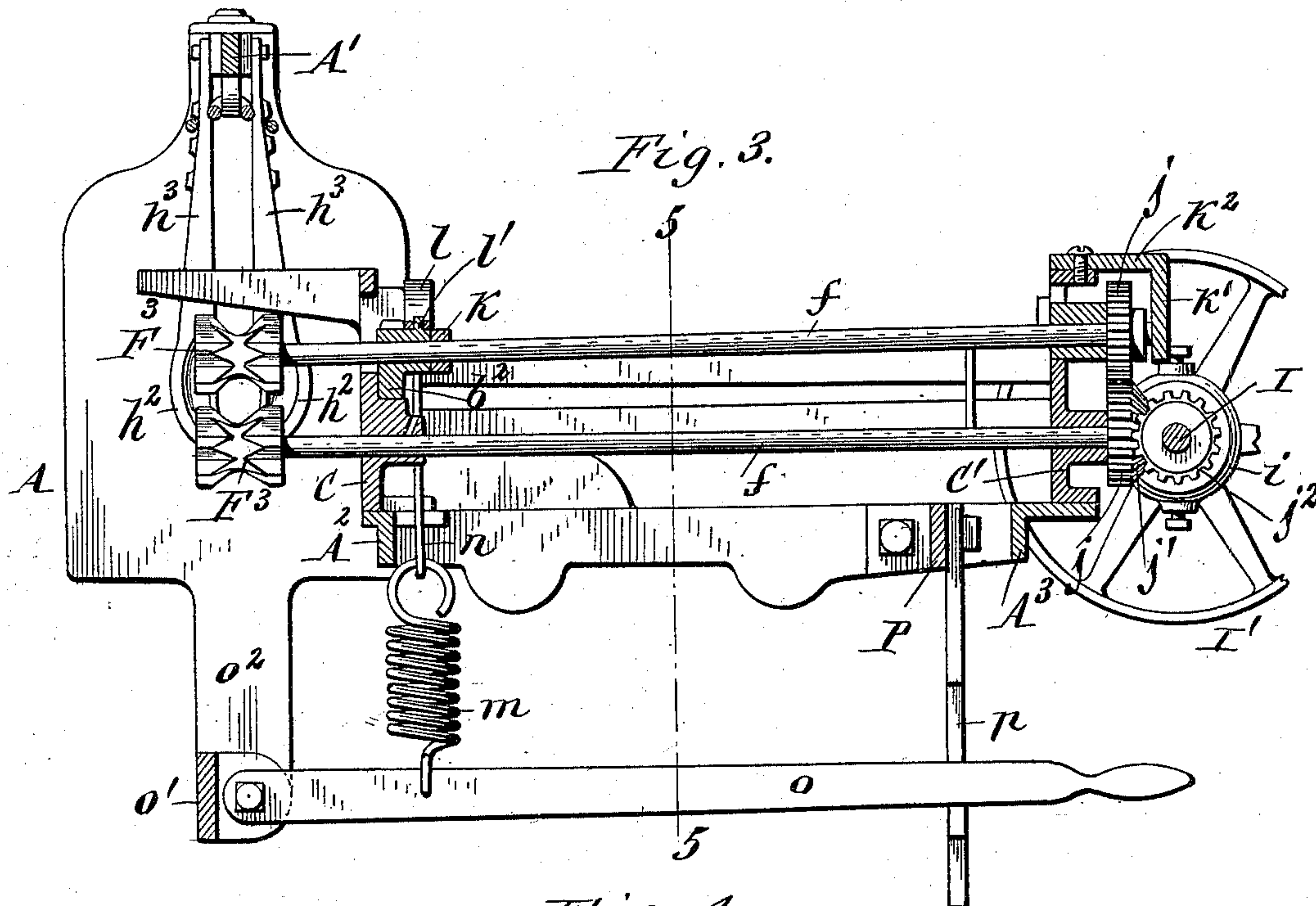
By Wilhelm Bonnet Attorneys.

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3 Sheets—Sheet 3.

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Fig. 5.

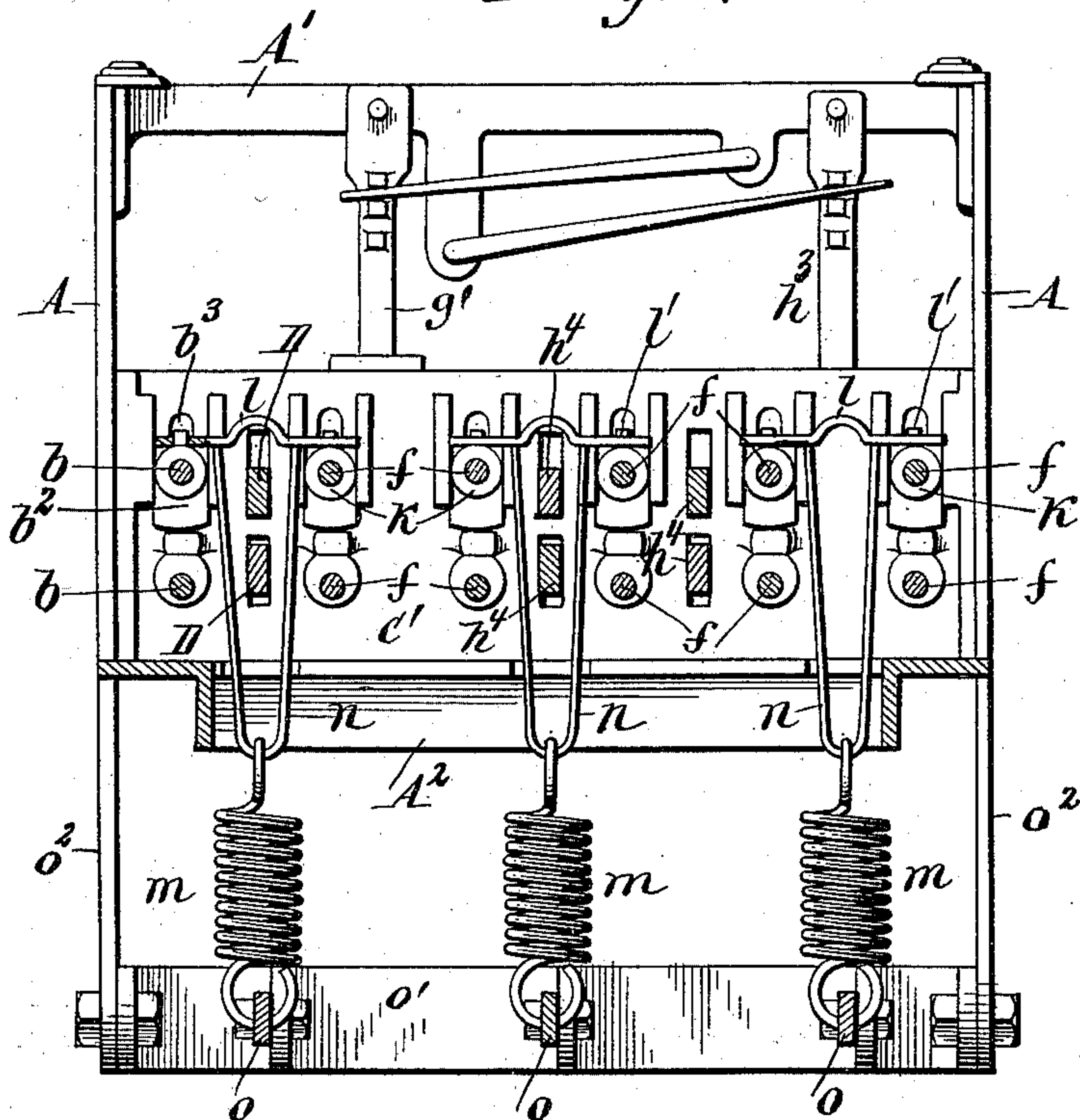


Fig. 6.

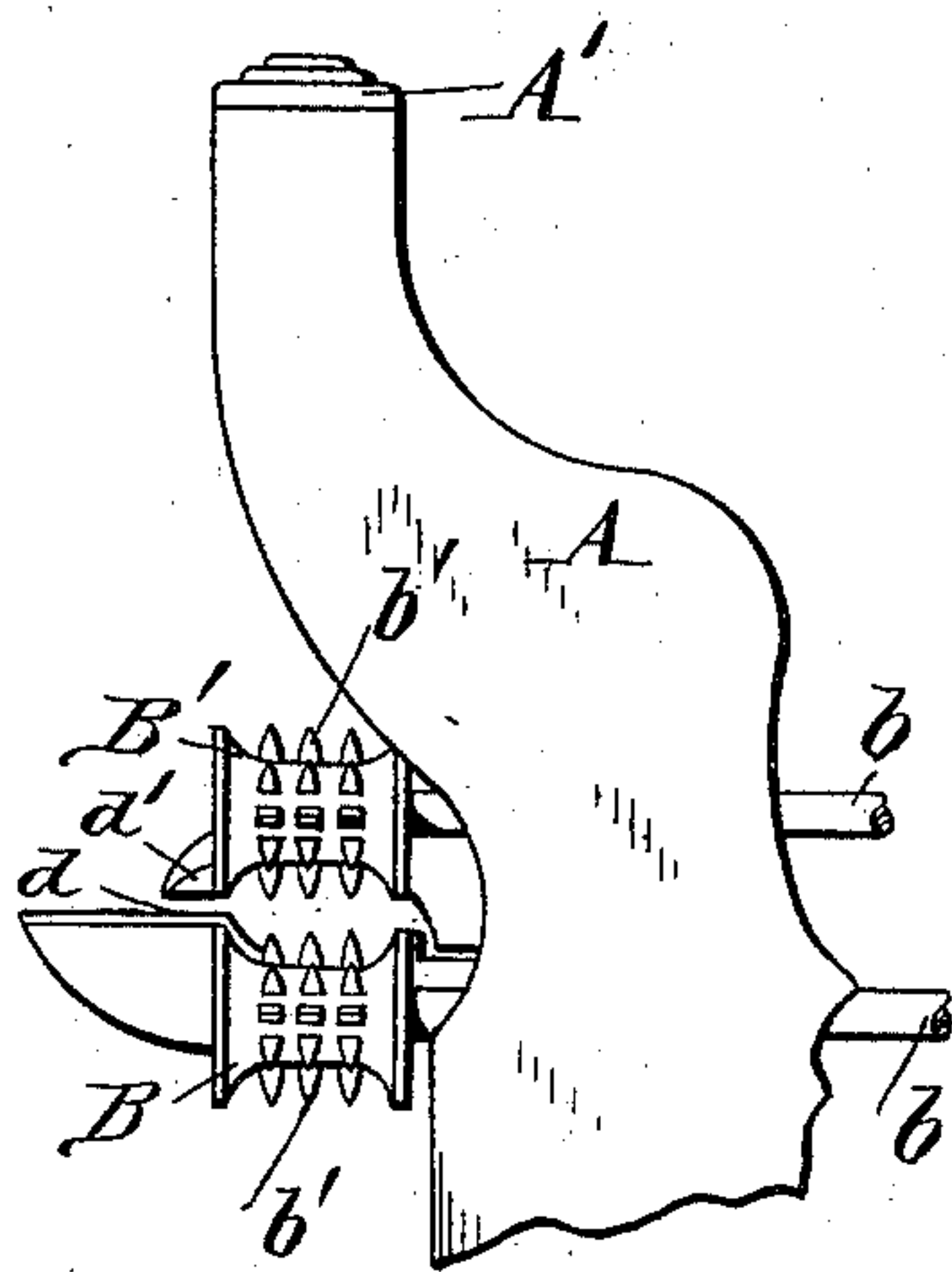


Fig. 7.

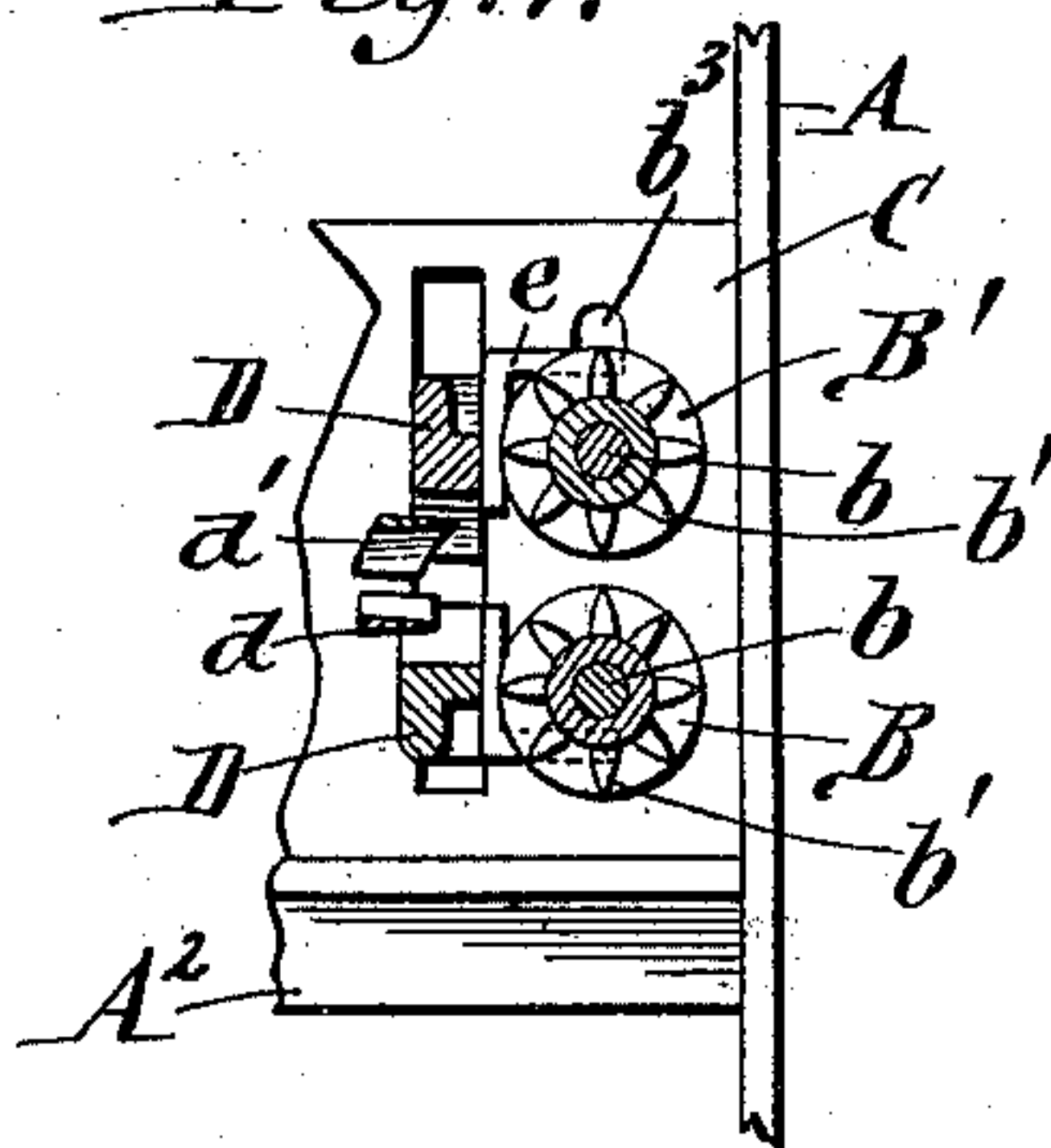
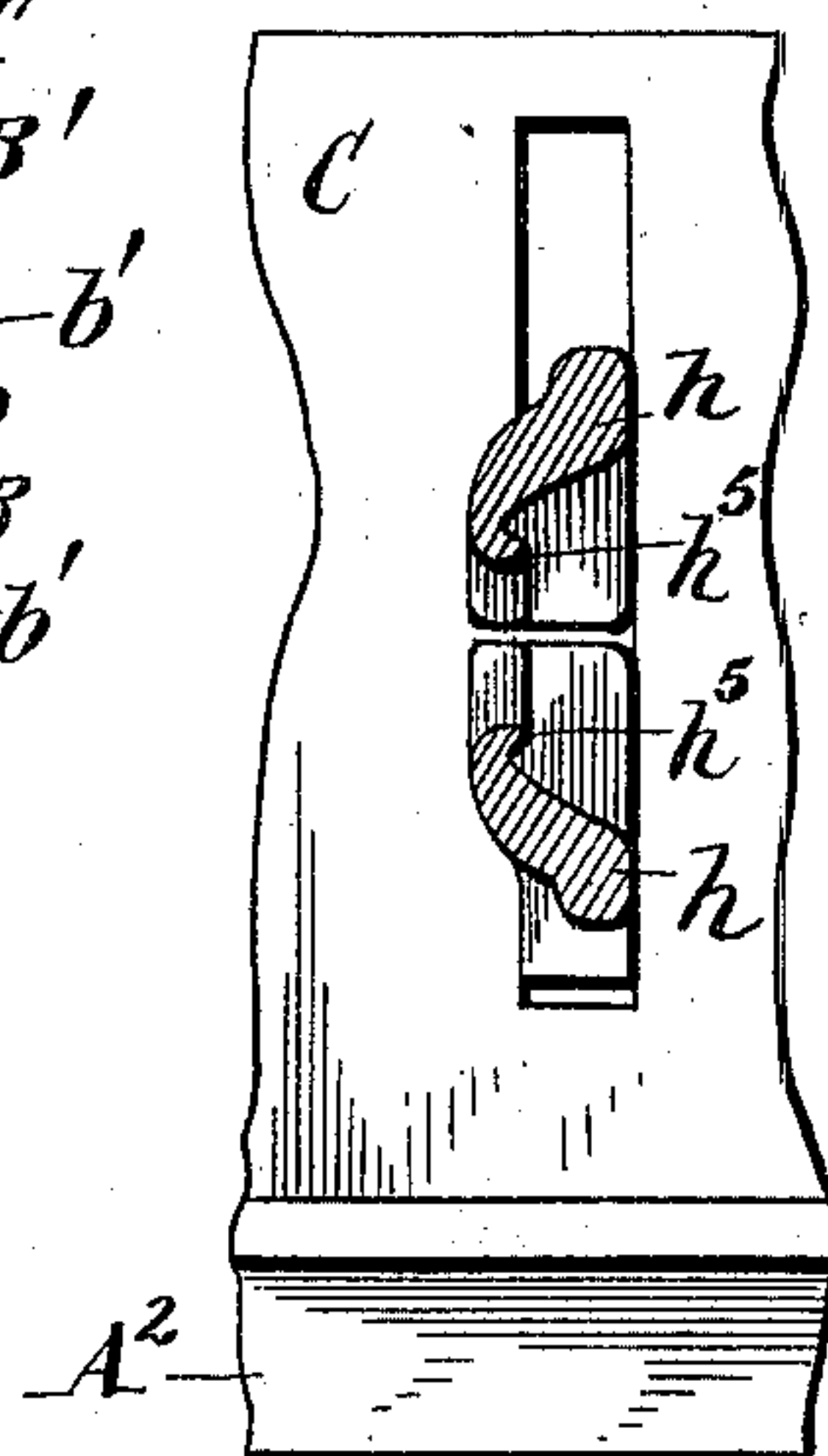


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM ROBERTS, OF BRANT, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SPRAGUE MANUFACTURING COMPANY, OF FARNHAM, NEW YORK.

MACHINE FOR CUTTING GREEN CORN FROM COBS.

SPECIFICATION forming part of Letters Patent No. 561,523, dated June 2, 1896.

Application filed October 11, 1894. Serial No. 525,589. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROBERTS, a citizen of the United States, residing at Brant, in the county of Erie and State of New York, have invented a new and useful Improvement in Machines for Cutting Green Corn from the Cob, of which the following is a specification.

This invention relates to that class of green-corn-cutting machines which comprise, essentially, a series of self-adjusting cutters and scrapers and yielding feed wheels or rollers whereby the ear is propelled past the cutters and scrapers.

One of the objects of my invention is to so support the cutters as to permit the same to adapt themselves to the varying surface of the ear independently of the feed-wheels and at the same time combine the cutters with the feed-wheels in such a manner that when ears of unusually large diameter enter between the feed-wheels or the ears enter butt forward the cutters will be spread or separated correspondingly, so as not to obstruct the progress of the ears.

My invention has the further object to render the scrapers of the machine more effective, to improve the devices for tensioning the feed-wheels, and to improve the machine in other respects.

In the accompanying drawings, consisting of three sheets, Figure 1 is a front view of my improved machine. Fig. 2 is a contracted top plan view of the machine. Fig. 3 is a vertical cross-section thereof. Fig. 4 is a rear view of the machine, partly in section. Fig. 5 is a longitudinal section of the same in line 5 5, Fig. 3. Fig. 6 is a face view of the primary feed-wheels and the adjacent supporting-frame. Fig. 7 is a fragmentary longitudinal section showing the relative arrangement of the primary feed-wheels and the primary cutters. Fig. 8 is an enlarged longitudinal section of a set of scrapers.

Like letters of reference refer to like parts in the several figures.

The main frame of the machine consists of upright side plates or frames A, upper and lower longitudinal bars A' and A², connecting the front portions of the side frames, and

a longitudinal rear bar A³, connecting the rear ends of said frames.

B and B' represent the first or primary set of feed-wheels, to which the ears of corn are delivered by a feed-belt or any other suitable feed device, which is not shown in the drawings. These feed-wheels are arranged one above the other, and each wheel is mounted on the front end of a horizontal shaft b. These shafts turn in bearings formed in upright front and rear supporting-plates C and C', secured at their ends to the side frames of the machine. Each of the primary feed-wheels is preferably provided with several rows of radial barbs or spurs b', which, while penetrating the ear and holding the same from twisting, prevent cutting of the silks into short lengths.

The shaft of the lower primary feed-wheel is preferably mounted in stationary bearings, while the shaft of the opposing lower wheel is supported with its front portion in a vertically-movable bearing b² to permit the upper feed-wheel to recede from the lower one in adapting itself to ears of different sizes. The shaft of the upper feed-wheel passes through an upright slot b³, formed in the front supporting-plate C, and the movable front bearing of the shaft is guided in ways arranged on the rear side of the front supporting-plate, as shown in Figs. 2 and 5.

d and d' represent the primary set of cutters arranged horizontally immediately in rear of the primary feed-wheels, so as to sever the kernels from the upper and lower sides of the ear. These cutters are of the usual crescent form and carried by transverse arms D, which are pivotally attached at their rear ends to the rear supporting-plate C' to allow the cutters to move toward and from each other for accommodating themselves to the size of the ear.

e is a lip or projection arranged on the supporting-arm of the upper cutter d' and projecting laterally over the shaft of the upper primary feed-wheel and into the path thereof. This lip is arranged so far above the upper feed-wheel shaft that it is not reached by the latter in the ordinary movements of the shaft, but so that in case the feed-wheel is raised to

an unusual extent by the passage of a very large ear or by an ear entering between the feed-wheels with its butt forward the shaft comes in contact with the lip of the upper cutter and raises the latter correspondingly. By this construction the cutters, though ordinarily independent of the feed-wheels and free to adapt themselves to the varying surface of the ear, are compelled to separate to an increased extent with the feed-wheels when an unusually large ear enters between the latter, and the cutters do not therefore impede the progress of the large ears, as do cutters which are unaffected by the movement of the feed-wheels.

F, F', F^2, F^3 , and F^4 represent successive sets of feed-wheels arranged in rear of the primary feed-wheels, whereby the ears are fed toward the tail of the machine after passing between the primary cutters. These feed-wheels are mounted on the front ends of horizontal shafts f , journaled in the front and rear supporting-plates C, C' , and the lower shafts are preferably supported in stationary bearings, while the upper shafts turn in vertically-movable bearings, similar to the shaft of the upper primary feed-wheel. The rear ends of all of the upper feed-wheel shafts are mounted in bearings capable of rocking or swiveling vertically on the rear supporting-plate C' to permit the requisite rising-and-falling motion of the free ends of the shafts.

g represents the secondary set of self-adjusting cutters, arranged vertically between the second and third sets of feed-wheels F and F' and carried by arms g' , depending from the upper longitudinal bar A' of the main frame.

$h, h',$ and h^2 represent three sets of self-adjusting scrapers, which alternate with the last three sets of feed-wheels F^2, F^3 , and F^4 and which may be supported in any suitable or well-known manner, the first two sets of scrapers being arranged horizontally, so as to remove the chit from the upper and lower sides of the cob, and the remaining set being arranged vertically to remove the chit from the sides of the cob. In the construction shown in the drawings the vertical scrapers are carried by arms h^3 , depending from the bar A' of the main frame, while the other scrapers are carried by horizontal arms h^4 , pivotally attached at their rear ends to the rear supporting-plate C' in any suitable manner. Each of the scrapers is formed with a scraping edge or lip h^5 , which is curved forwardly or in the direction opposite to that in which the ears travel through the machine. By this construction a more effective action of the scrapers is obtained.

I represents the longitudinal driving-shaft, supported in bearings i at the rear portion of the main frame, and I' is the driving-pulley mounted on said shaft. The shafts of each set of feed-wheels are geared together by spur-wheels j , secured to the rear ends of the shafts, and motion is transmitted to said

shafts by bevel-rims j' , formed on the spur-wheels of the lower feed-wheel shafts and meshing with the bevel-wheels j^2 , secured to the driving-shaft. The upper feed-wheel shafts are held against forward displacement in their bearings by collars k , secured thereto and abutting against the rear sides of their front bearings, while rearward displacement of the shafts is prevented by a depending flange k' , which is formed on a horizontal plate k^2 , secured to the upper edge of the supporting-plate C' , and which overlaps the rear ends of the several feed-wheel shafts. The horizontal plate k^2 covers the gear-wheels of the feed-shafts, and thus forms a guard which prevents contact of the operator's hands with these gear-wheels.

The upper self-adjusting feed-wheels are preferably coupled together in pairs by yokes l , and are yieldingly drawn toward the opposing lower wheels by springs m . The yokes l straddle adjacent pairs of the feed-wheel shafts and are held in place upon the latter by pins l' , arranged on the upper sides of the front bearings of the shafts and passing through openings in the yokes, as shown in Figs. 2 and 5, or by any other suitable means. The upper ends of the tension-springs are connected with the yokes by depending links n , while the lower ends are attached to transverse hand-levers o , pivoted at their front ends to a longitudinal bar o' , which is secured at its ends to downward extensions o^2 of the side plates A . Each of these levers engages with a toothed or notched adjusting-bar p depending from a longitudinal bar P , secured at its ends to the side plates A . The teeth of the adjusting-bars have abrupt lower faces and inclined backs or upper faces, so as to permit the levers to ride downward over the teeth, but hold the same against upward movement when in engagement with the abrupt face of any of the teeth. The tension of the yoke-springs is regulated by adjusting the hand-levers up or down on the toothed bars, the tension being increased by interlocking the levers with a lower tooth of the bars and diminished by interlocking the same with a higher tooth. The hand-levers have sufficient lateral play on their pivots to permit the same to be disengaged from the teeth of the adjusting-bars. This tension device enables the operator to readily regulate the resistance of the upper feed-rollers in accordance with the nature of the corn under treatment.

I claim as my invention—

1. The combination with the stationary frame of the machine, of a self-adjusting feed-wheel and its shaft, a self-adjusting cutter arranged in rear of the feed-wheel, and a lip or projection arranged on the cutter and extending into the path of the feed-wheel shaft, said lip or projection being located beyond the reach of said shaft under the ordinary movements thereof, whereby the shaft comes in contact with the lip or projection

only when the feed-wheel recedes to an unusual extent, substantially as set forth.

2. The combination with the stationary frame of the machine and the cutters, of a 5 feed-wheel mounted on a yielding rotary shaft, driving mechanism for turning said shaft, an adjustable hand-lever pivoted to the frame underneath the feed-wheel shaft, and a tension-spring having its upper end connected with said shaft and its lower end connected with said hand-lever, substantially as set forth. 10

3. The combination with the stationary frame of the machine and the cutters, of a 15 number of feed-wheels mounted on yielding horizontal shafts, driving mechanism for turning said shafts, a yoke straddling said shafts,

a toothed vertical bar secured to the frame, a hand-lever pivoted to the frame underneath said feed-wheel shafts and engaging with 20 said toothed bar, and a tension-spring connecting said hand-lever with said yoke, substantially as set forth.

4. The combination with the main frame and the feed-wheels and their shafts, of a 25 guard-plate covering the actuating-wheels of said shafts and having a depending stop-flange which overlaps the ends of the feed-wheel shafts, substantially as set forth.

Witness my hand this 20th day of July, 1894. 30

WILLIAM ROBERTS.

Witnesses:

SMITH MCINTYRE,
DUANE CONKLIN.