

(No Model.)

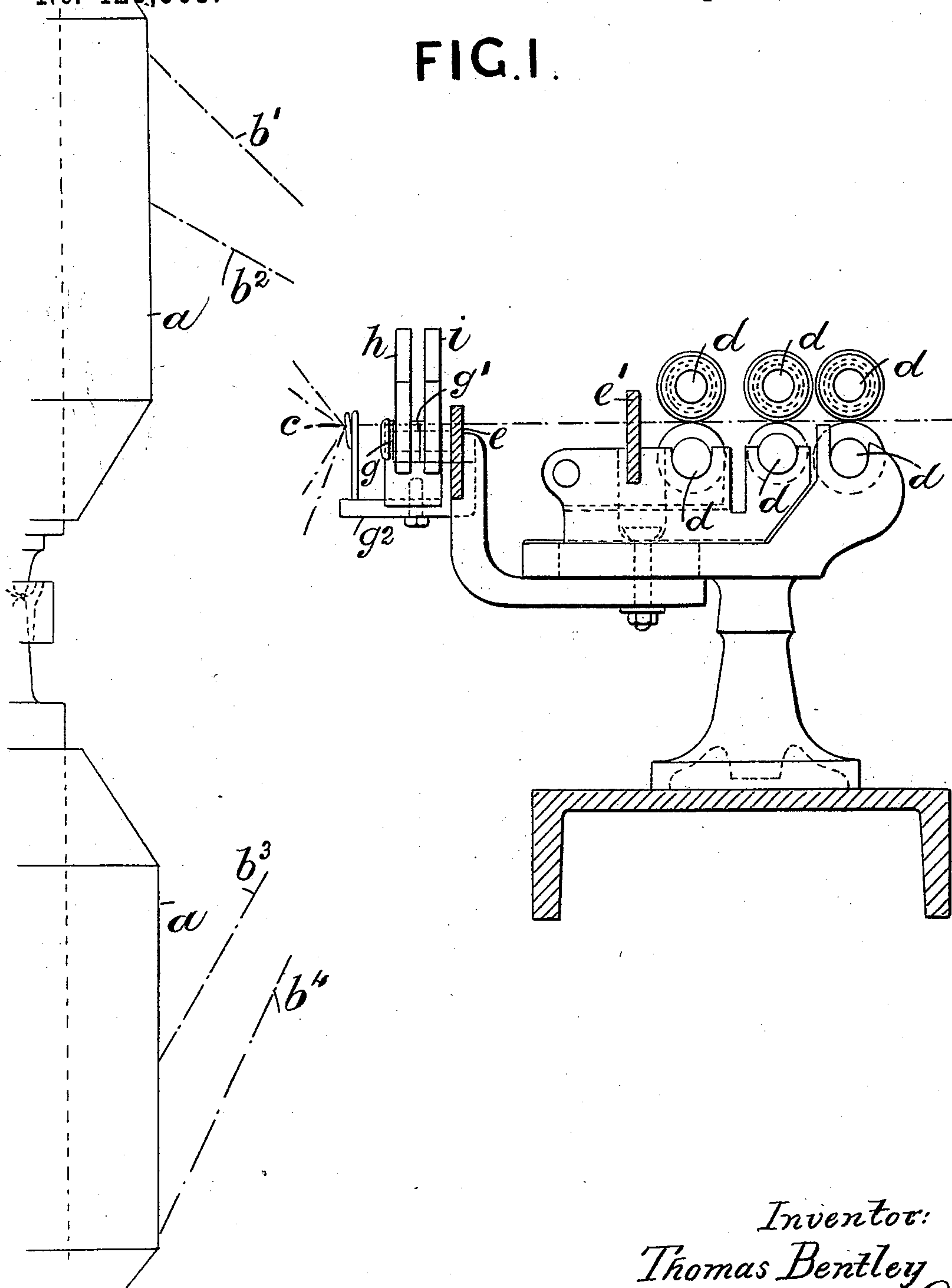
3 Sheets—Sheet 1.

T. BENTLEY.
DEVICES FOR PREVENTING SINGLES IN MACHINES FOR PREPARING, &c.,
FIBROUS MATERIALS.

No. 426,903.

Patented Apr. 29, 1890.

FIG. 1.



Witnesses:

E. R. Brown

C. L. Richards

Inventor:
Thomas Bentley

By

Richards & Co.

Attorneys.

(No Model.)

3 Sheets—Sheet 2.

T. BENTLEY.
DEVICES FOR PREVENTING SINGLES IN MACHINES FOR PREPARING, &c.,
FIBROUS MATERIALS.

No. 426,903.

Patented Apr. 29, 1890.

FIG. 6.

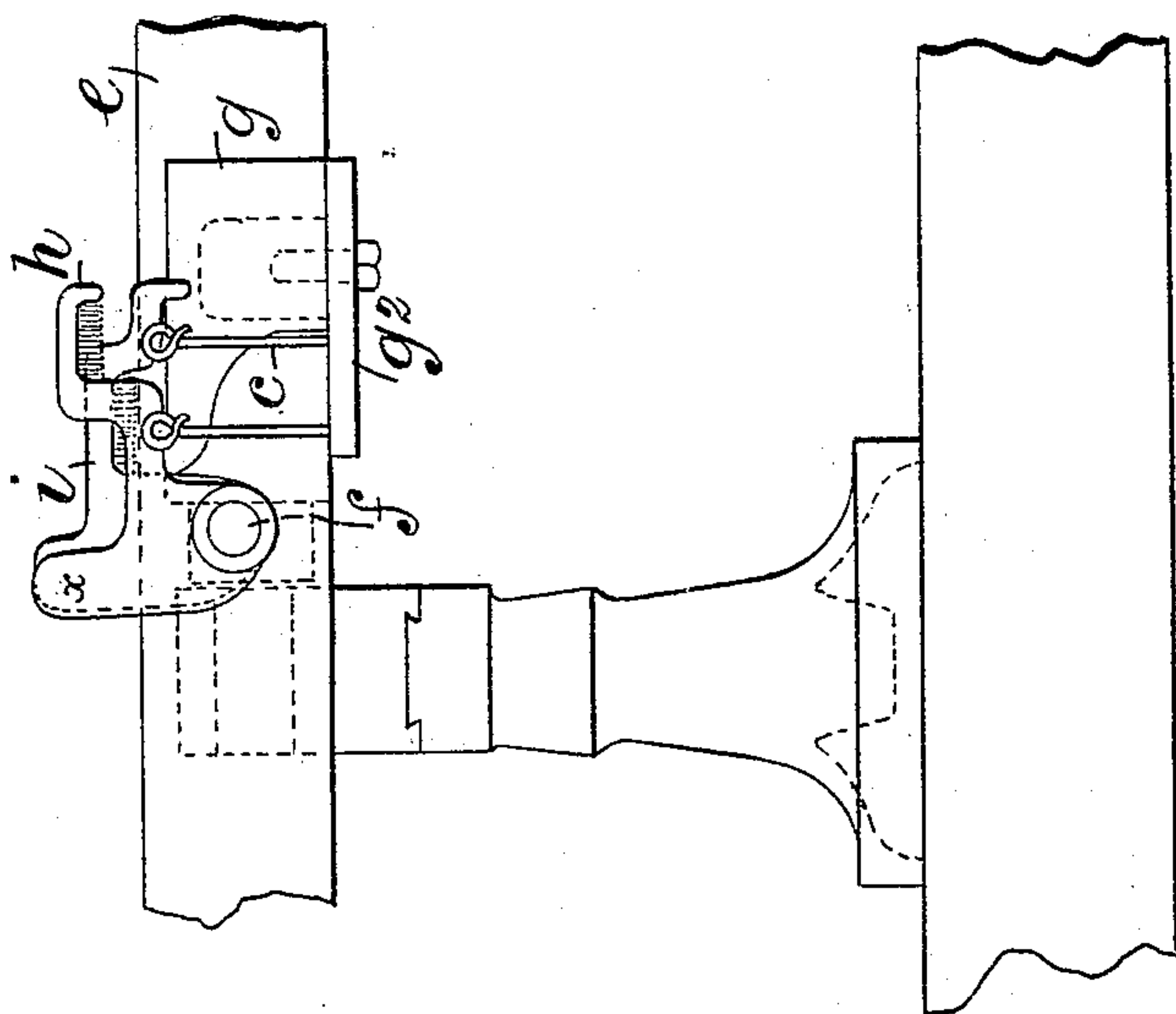
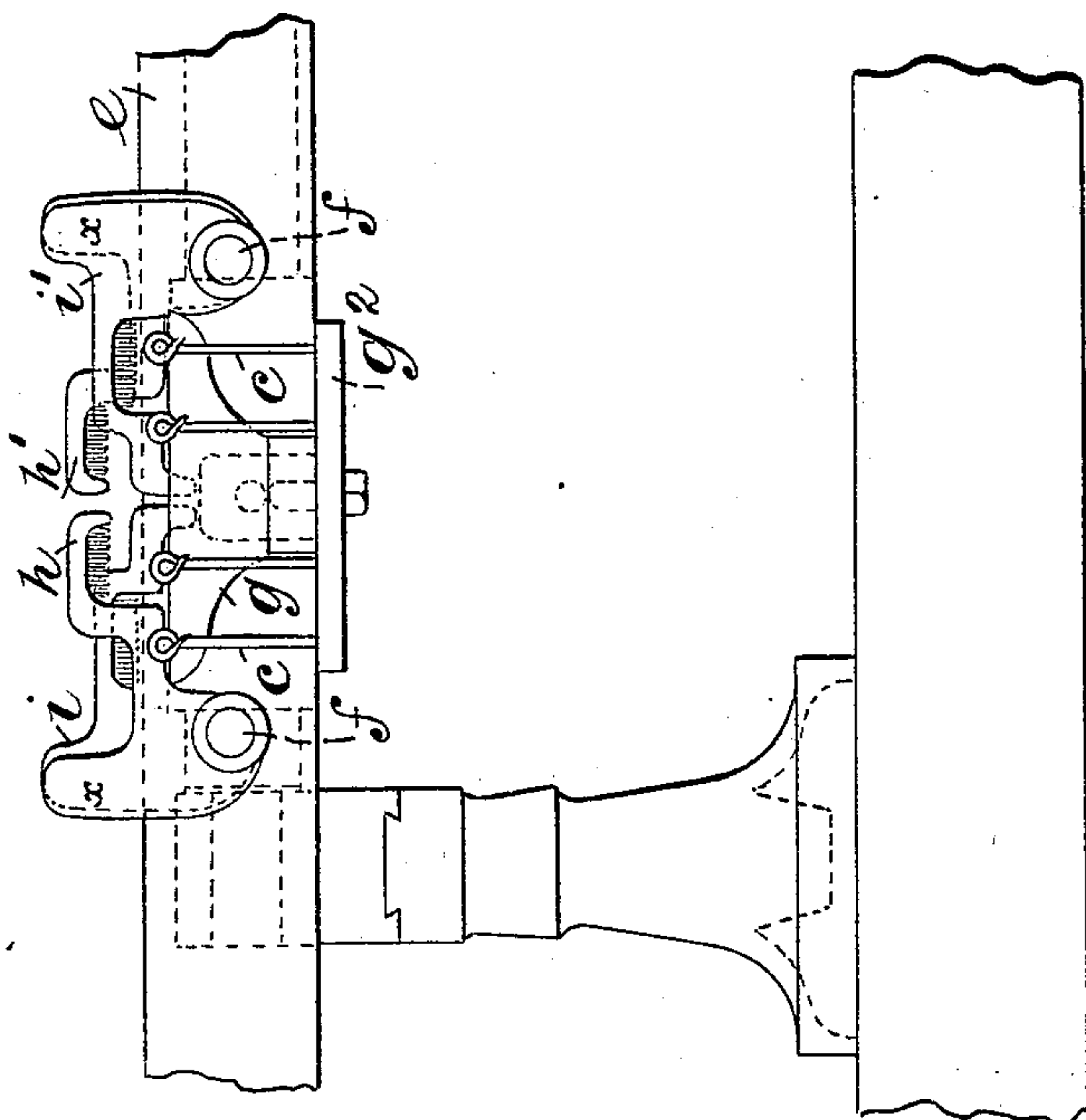


FIG. 2.



Witnesses:

E. R. Brown
C. L. Richards

Inventor:

Thomas Bentley

By

Richards & Co.

Attorneys.

(No Model.)

3 Sheets—Sheet 3.

T. BENTLEY.
DEVICES FOR PREVENTING SINGLES IN MACHINES FOR PREPARING, &c.
FIBROUS MATERIALS.

No. 426,903.

Patented Apr. 29, 1890.

FIG.3.

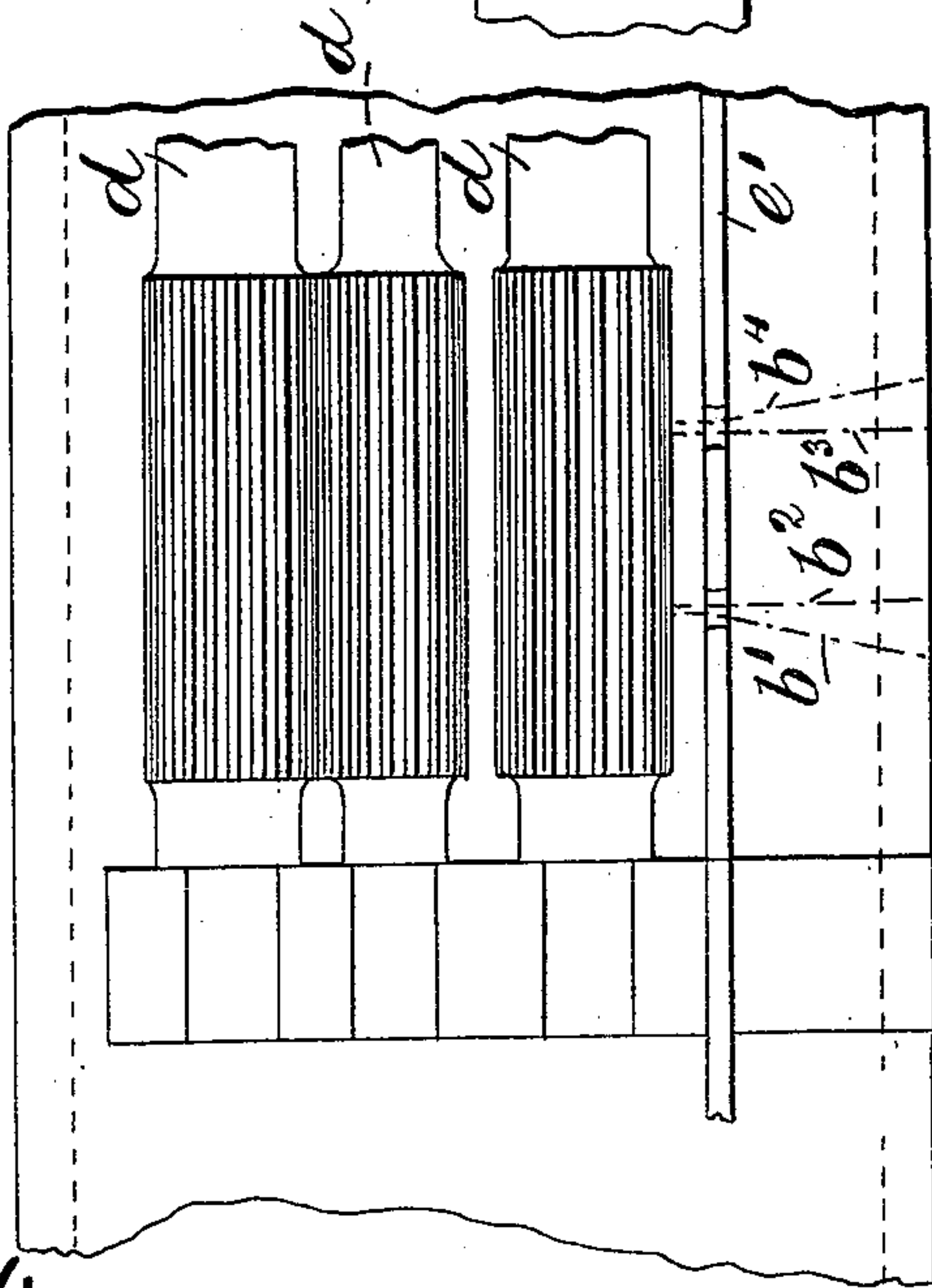


FIG.4.

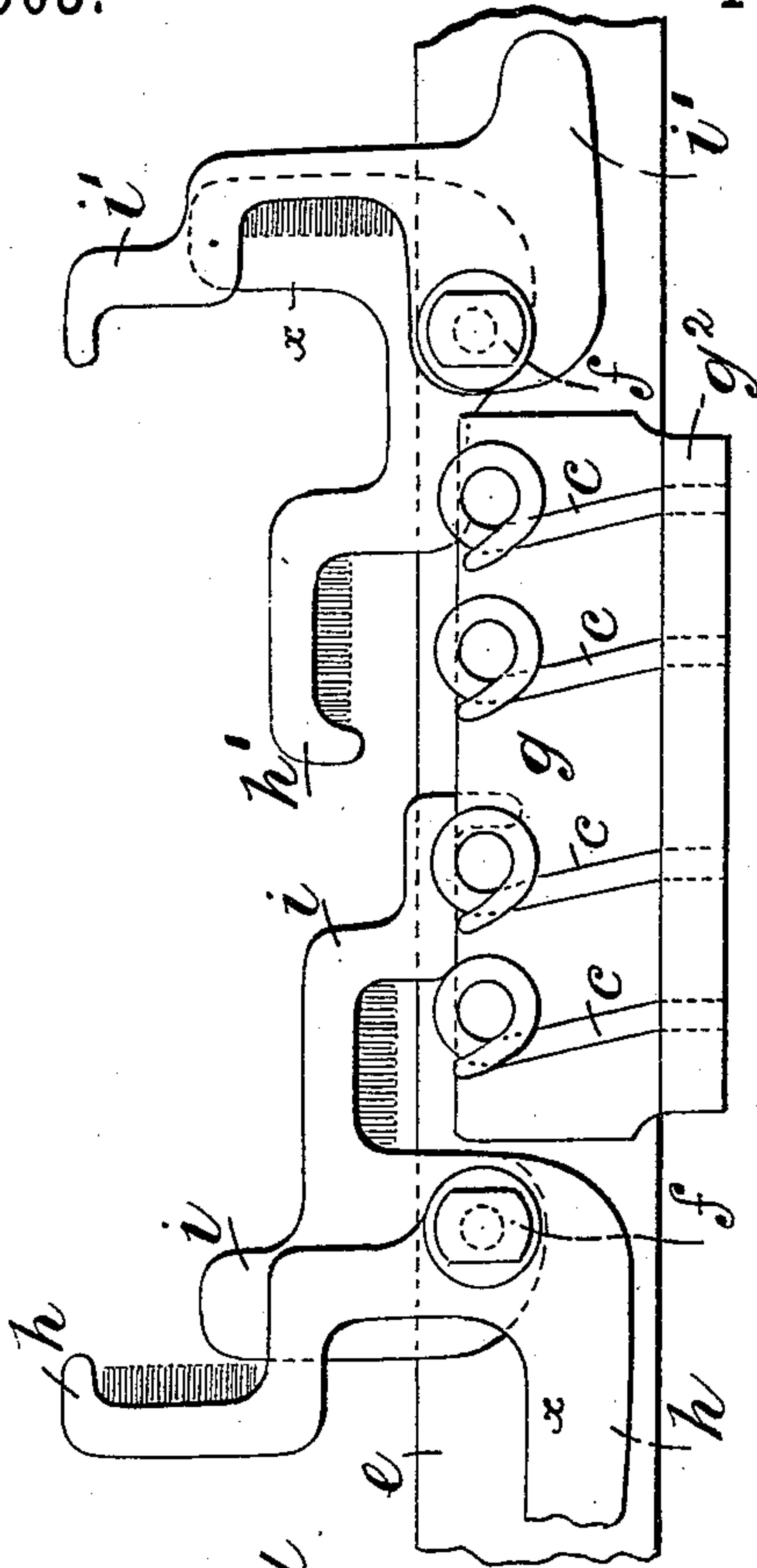
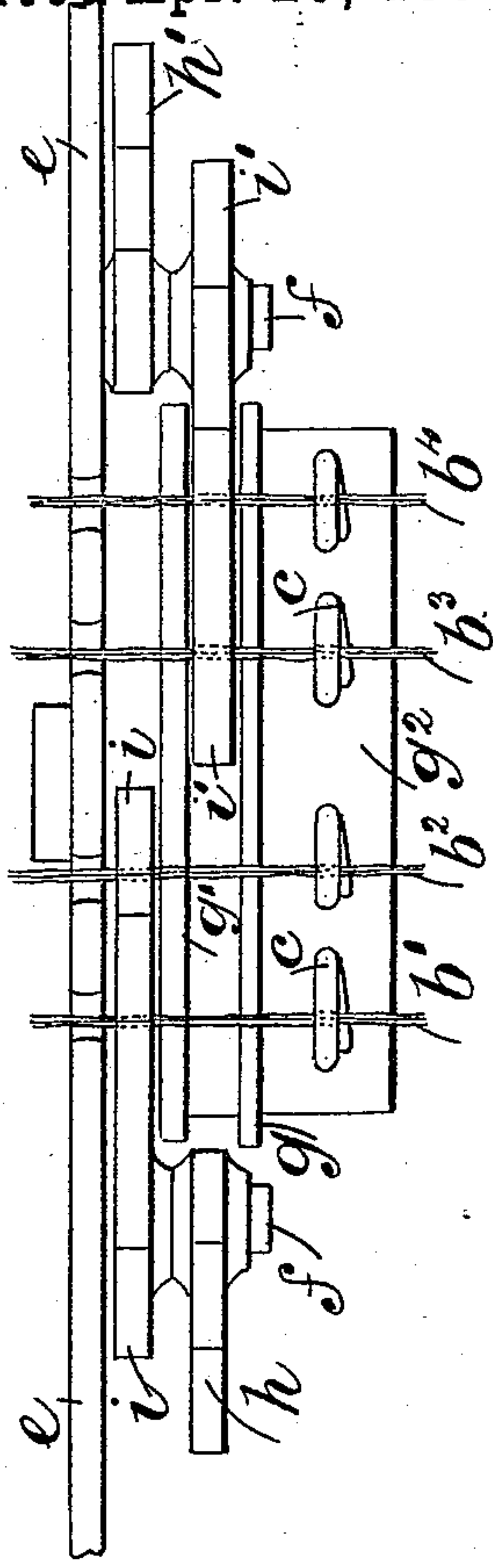


FIG.5.



Witnesses:

E. R. Brown
E. L. Richards

Inventor:

Thomas Bentley

By

Richards

Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS BENTLEY, OF OLDHAM, COUNTY OF LANCASTER, ENGLAND,
ASSIGNOR TO WILLIAM NIELD, OF SAME PLACE.

DEVICE FOR PREVENTING SINGLES IN MACHINES FOR PREPARING, &c., FIBROUS MATERIAL.

SPECIFICATION forming part of Letters Patent No. 426,903, dated April 29, 1890.

Application filed January 26, 1889. Serial No. 297,633. (No model.) Patented in England August 11, 1888, No. 11,586.

To all whom it may concern:

Be it known that I, THOMAS BENTLEY, a subject of the Queen of Great Britain, and a resident of Oldham, in the county of Lancaster, England, have invented a certain new and useful Improvement in Devices for Preventing Singles in Machines for Preparing, Spinning, Doubling, and Winding Fibrous Materials, (for which I have obtained a patent in Great Britain, No. 11,586, dated August 11, 1888,) of which the following is a specification.

This invention relates to improvements on the invention for which Letters Patent in Great Britain, No. 4,674 were granted to me, the said Thomas Bentley, and to Samuel Makin on the 29th of March, 1887; and the object of my improvements is to render the mechanism therein described more certain and reliable in its action.

In carrying out my present improvements I dispense with the pair of rollers, one of which had projections and the other corresponding recesses, and between which the slivers, yarns, or threads, hereinafter referred to under the single designation "sliver," passed, as described in the specification to said Letters Patent, and instead I employ, in the case of single-boss rollers, two levers pivoted on a stud, which levers have teeth at one end and are arranged to be supported in their normal positions each by one sliver. Should a sliver break its lever falls and the teeth come onto the other sliver and hold it until broken by the rollers, thus preventing a single sliver going forward. In the case of double bosses I employ four levers, pivoted, preferably, on two studs for each double boss.

In order that my invention may be fully understood and readily carried into effect, I will describe the accompanying three sheets of drawings, reference being had to the figures marked thereon.

Figure 1 is an end elevation of part of a slubbing, intermediate, or roving frame with double-boss rollers, to which my present improvements are applied. Fig. 2 is a front elevation of the same with the bobbins removed. Fig. 3 is a plan of Fig. 2. Figs. 4 and 5 are detail views, on a larger scale, of

some of the parts shown in the preceding views. Fig. 6 is a similar view to Fig. 2, but illustrating the application of my improvements to a frame with single-boss rollers.

Similar letters refer to similar parts throughout the several views.

In the frame illustrated by Figs 1 to 5 there are four bobbins *a*, of which two only can be seen in Fig. 1, from each of which bobbins a sliver *b*¹ *b*² *b*³ *b*⁴ passes through one of four guide-eyes *c* to one head or section of the double-boss fluted drawing-rollers *d*, the slivers being further supported and guided in notches in two vertical plates *e* *e'*. On the plate *e* are two studs *f* *f*, substantially parallel with the path or line of travel of the sliver, and one on each side of two vertical plates *g* *g'*, which also serve as supports for the slivers and are formed with or carried on the bracket *g*², which carries the guide-eyes *c*. On each stud *f* are pivoted two weighted balanced levers *h* *i* and *h'* *i'*, respectively, which are adapted to oscillate in planes substantially transverse to the lines of travel of the slivers, and are of the peculiar shape and construction shown best in the detail view, Fig. 4. These levers are preferably formed each with a relatively low portion adapted to rest on one sliver and a relatively high portion situated directly over and at a distance above the other sliver and adapted to engage the latter. The front or free portions of the weighted balanced levers *h* *h'* have fine teeth or needle-points, and the middle portions are smooth where they bear, respectively, upon the two outer slivers *b*¹ *b*⁴, which support them in their normal positions, as shown in Fig. 2, whereas the middle portions of the weighted balanced levers *i* *i'* have teeth and the free end portions are smooth where they bear, respectively, upon the slivers *b*² *b*³.

It follows from the foregoing that when one of the slivers breaks the front end of the weighted balanced lever, which it has been supporting, falls forward into one of the spaces between the vertical supports or plates *g* *g'* or *g'* *e*, and the teeth on the said lever come onto the other sliver. For example, say that the sliver *b*¹ breaks or fails. Then the pivoted lever *h*, which up to that moment it had

been supporting, falls forward between the two supports or plates $g g'$, and the teeth on its front end drop onto and trap the sliver b^2 , which being thus bent and held is broken off by the action of the rotating drawing-rollers d . In like manner if the sliver b^2 were to break, the lever h' or i' , as the case might be, would fall and trap the other sliver.

By the term "balanced" as applied to the lever I mean that the greater portion, though not all, of its weight is counterpoised by the weighted portion x . This latter portion is preferably situated behind (on the other side from the lever-arm) the lever-pivot f and above the same, and adapted when the arm falls to pass the vertical line of said pivot over to the same side thereof as the lever-arm, and thereby increase the gravitating tendency of the latter.

The arrangement illustrated by Fig. 6 for a frame with single-boss rollers is substantially the same as that shown in the preceding views, the only difference being that in this case only one pair of levers $h i$, mounted, preferably, on a single stud f , is required, as only two slivers $b' b^2$ are treated at each head or section of the machine. When three threads are being wound or twisted together, it would be necessary to employ three weighted balanced levers, each supported by one thread and having teeth to catch and trap the other two threads in a similar manner to that already described for the slivers.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a mechanism for preventing singles,

the combination, with the devices which move and guide the slivers, of a lever mounted upon a pivot substantially parallel with the line of travel of the slivers and adapted to oscillate in planes transverse thereto, said lever having a portion whereby one of said slivers supports it and a toothed portion adapted to engage and break the other sliver upon the breaking of the first sliver, substantially as set forth.

2. The combination, with the devices which move and guide the slivers, of the balanced lever having a weighted portion behind and above the pivot adapted to pass the vertical line of the pivot as the lever falls, combined with supports between which that portion of the lever which severs the sliver is adapted to fall, thereby bending and securely trapping the sliver, substantially as set forth.

3. The combination, with the devices which move and guide the slivers, of the balanced levers mounted and oscillating in planes transverse to the paths of the slivers, each of the said levers being provided with a smooth portion adapted to rest upon one sliver and with a toothed portion in line with the other sliver, substantially as set forth.

4. The combination, with the devices which move and guide the slivers, of the balanced lever having a relatively low portion adapted to rest on one sliver and a relatively high portion situated directly over and at a distance above the other sliver and adapted to engage the latter, substantially as set forth.

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

THOMAS BENTLEY.

Witnesses:

H. B. BARLOW,
S. W. GILLET.