

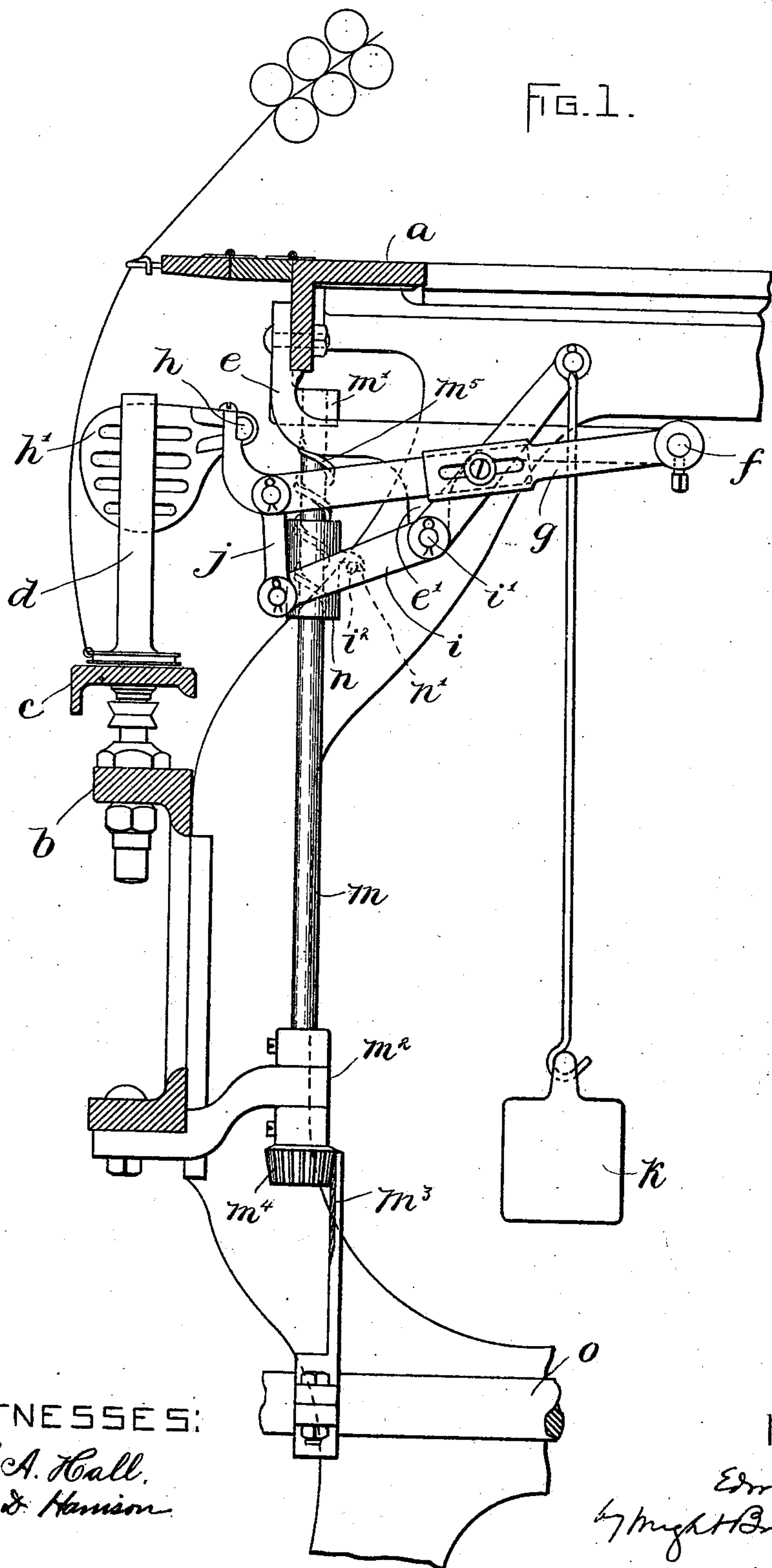
(No Model.)

E. WHITTUM.
SPINNING FRAME.

3 Sheets—Sheet 1.

No. 546,460.

Patented Sept. 17, 1895.



WITNESSES:

H. A. Hall.
A. S. Hanson.

INVENTOR:

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(No Model.)

3 Sheets—Sheet 2.

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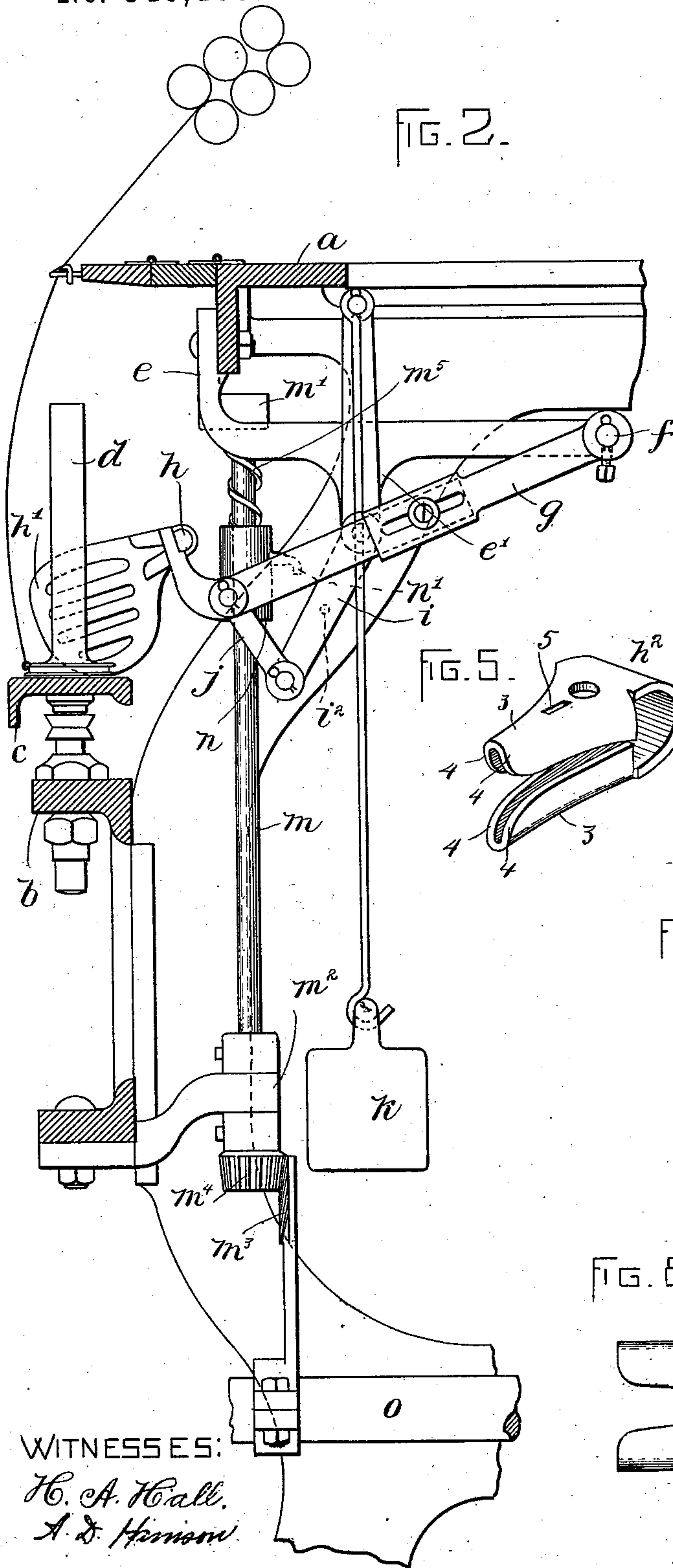


FIG. 3.

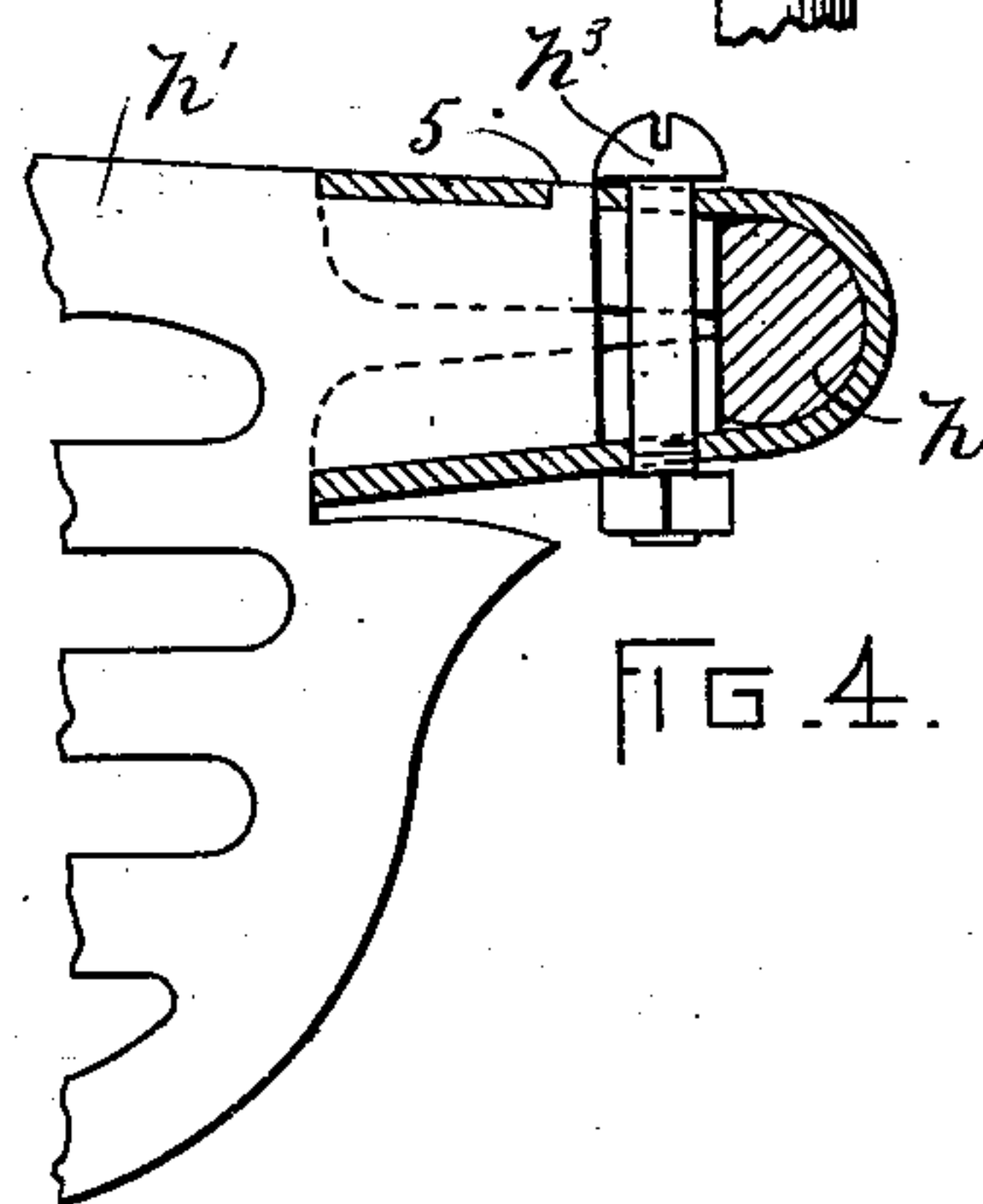
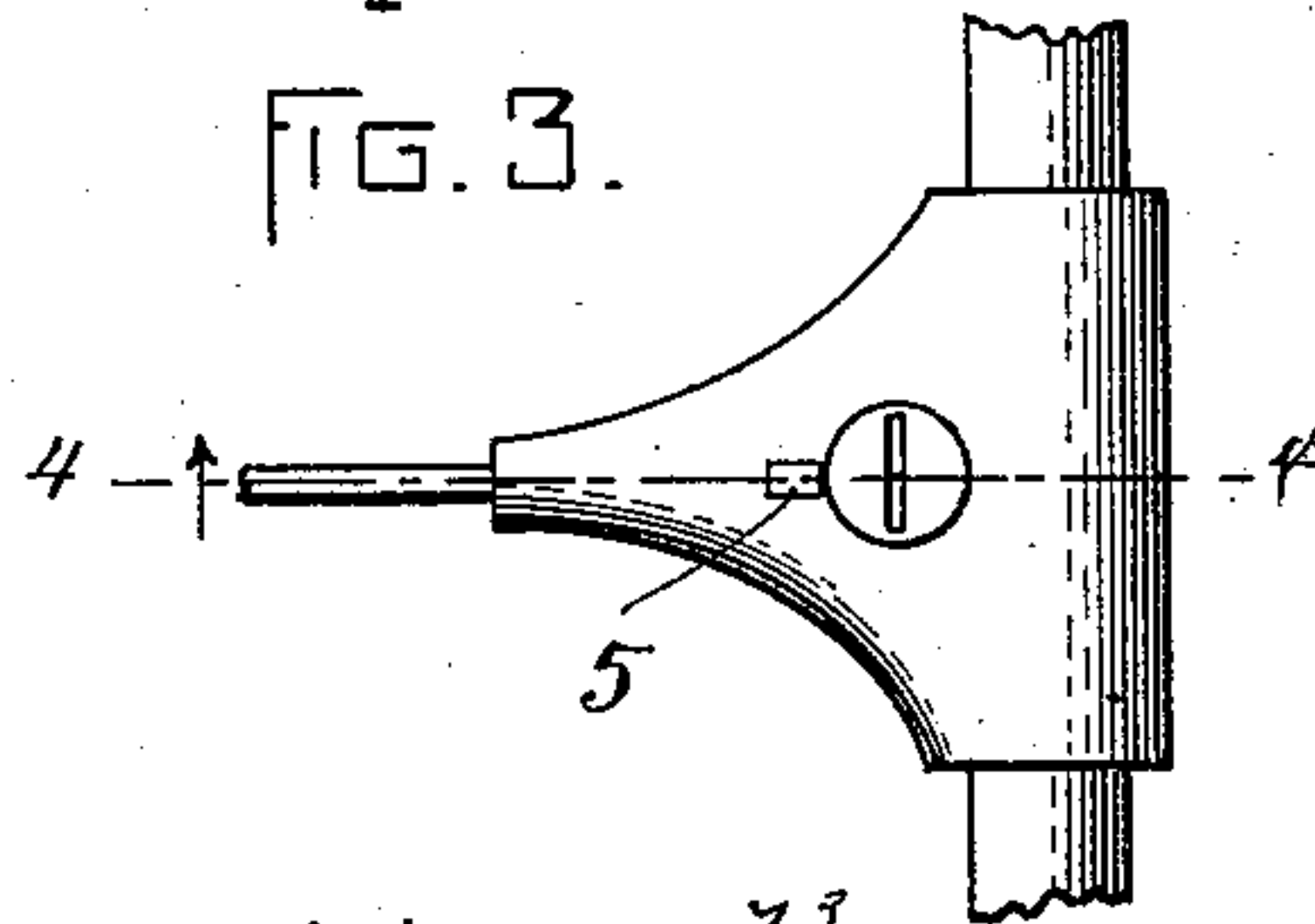


FIG. 4.

FIG. 5.

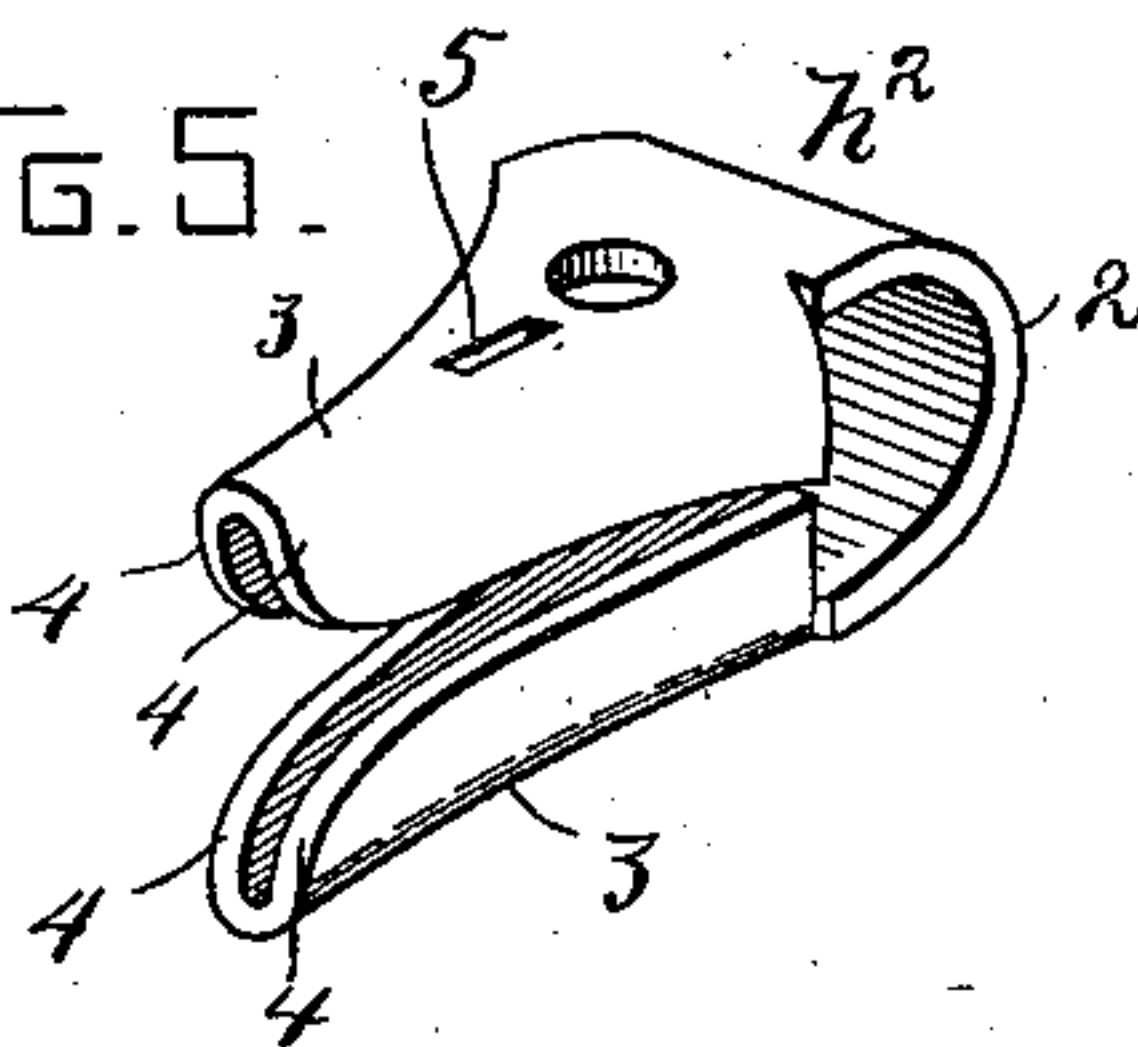


FIG. 6.

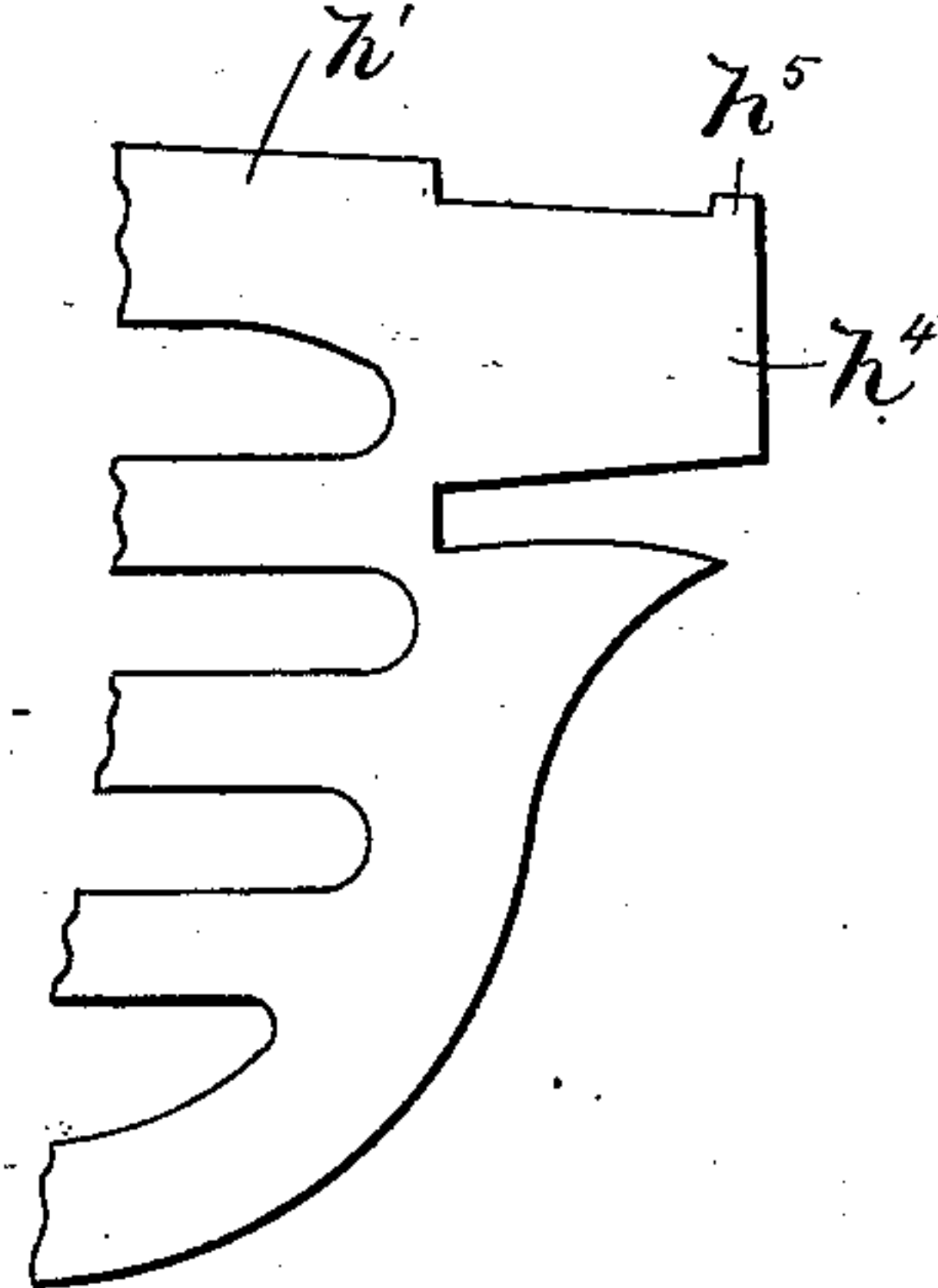


FIG. 8.

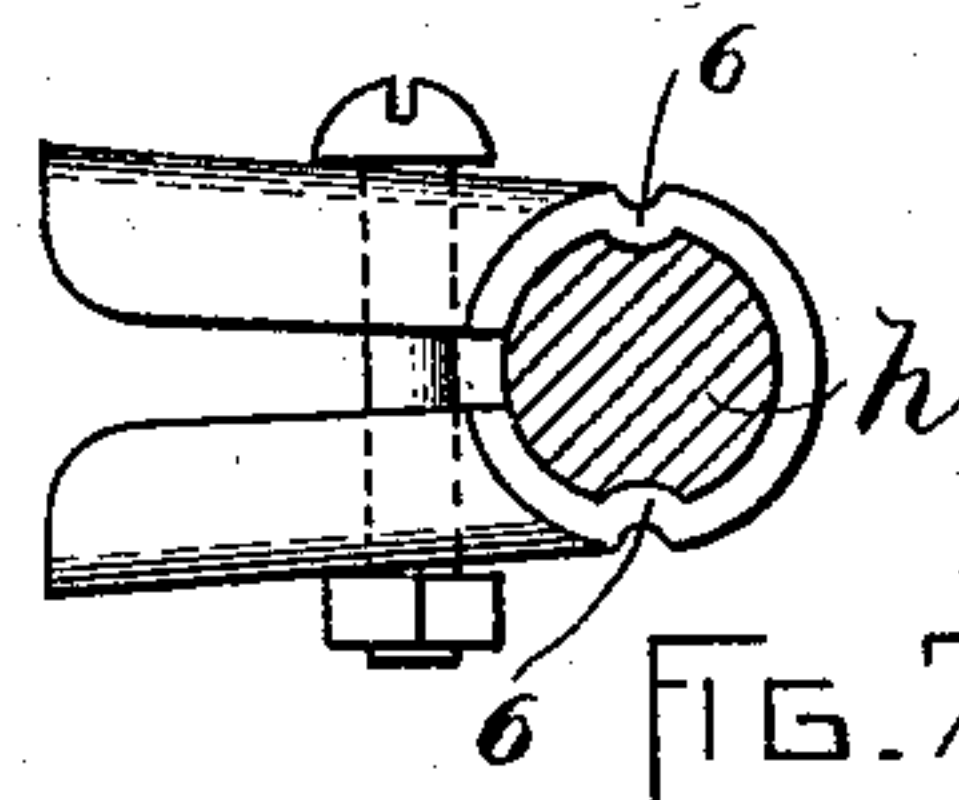
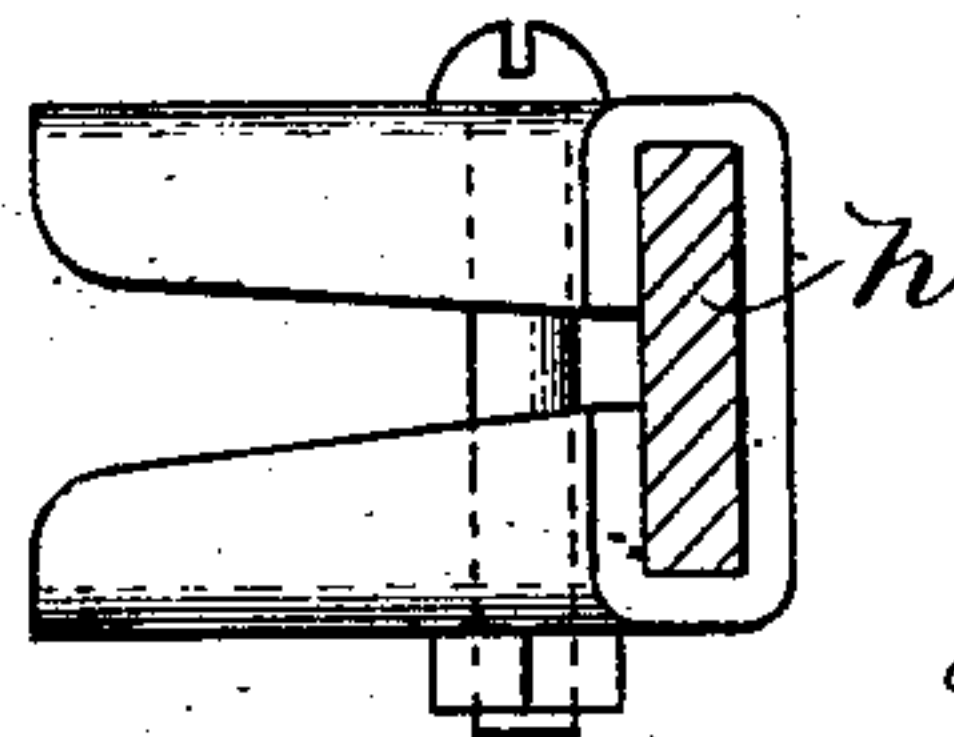


FIG. 7.

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(No Model.)

3 Sheets—Sheet 3.

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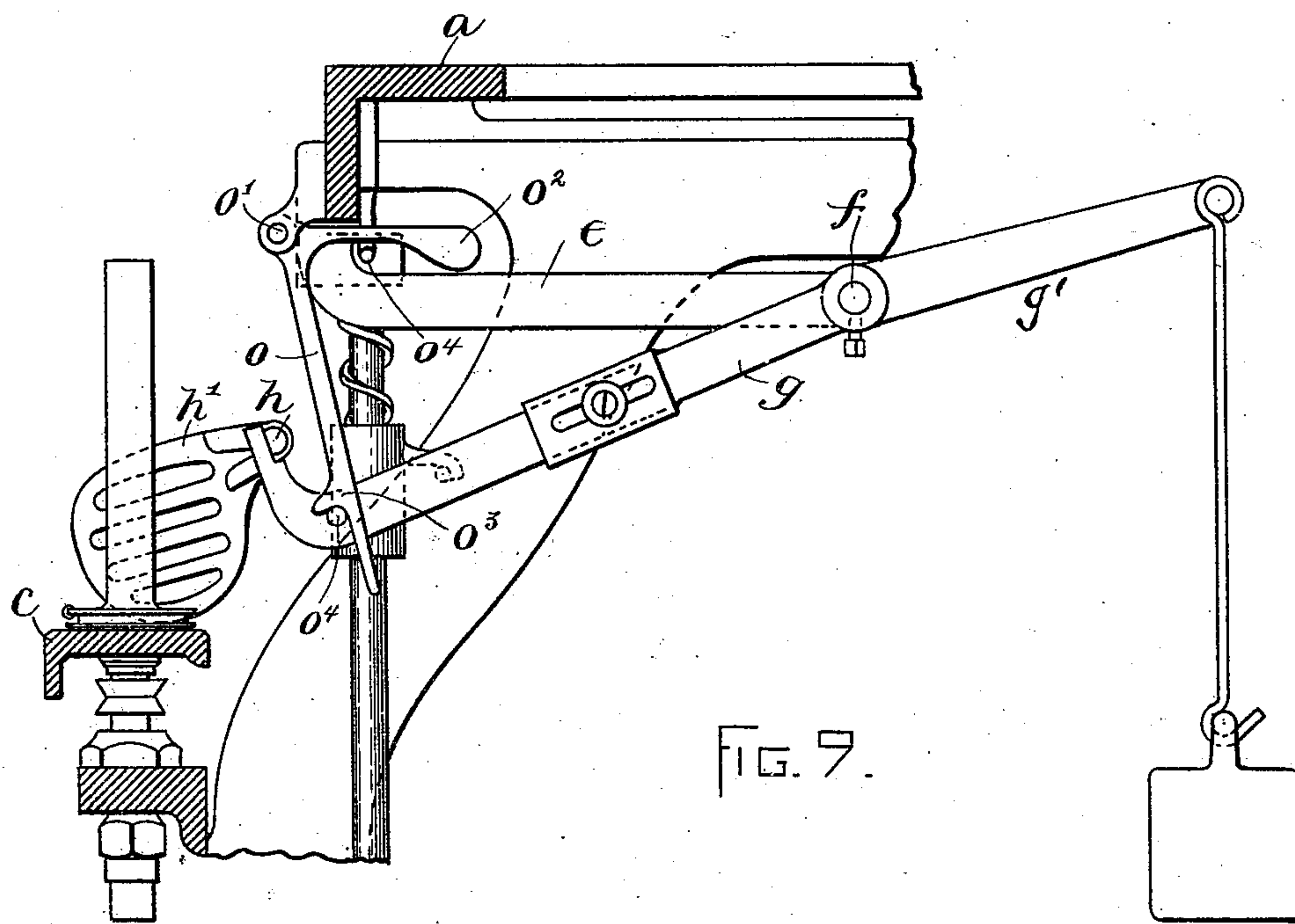


FIG. 7.

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UNITED STATES PATENT OFFICE.

EDWARD WHITTUM, OF FALL RIVER, ASSIGNOR TO GEORGE DRAPER & SONS,
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SPINNING-FRAME.

SPECIFICATION forming part of Letters Patent No. 546,460, dated September 17, 1895.

Application filed June 14, 1895. Serial No. 552,775. (No model.)

To all whom it may concern:

Be it known that I, EDWARD WHITTUM, of Fall River, in the county of Bristol and State of Massachusetts, have invented certain
5 new and useful Improvements in Spinning-Frames, of which the following is a specification.

This invention has for its object to provide simple and efficient means for operating the
10 separators of a spinning-machine in such manner that while the separators are given positive upward and downward movements they will be capable at any time of being displaced to permit access to the spindles.

15 The invention also has for its object to enable the separators to be displaced or removed downwardly from their operative position and held in contact with the ring-rail while doffing by the action of a counterbalancing-weight,
20 which is employed to maintain the separators in their operative positions between the spindles.

The invention also has for its object to provide improved means for connecting the separators to the rod or shaft which supports them.

25 To the above-mentioned ends my invention consists in the several improvements which I will now proceed to describe and claim.

In the accompanying drawings, forming a
30 part of this specification, Figure 1 represents a transverse vertical section of a portion of a spinning-frame provided with my improvements, the separators being shown in their operative position between. Fig. 2 represents a similar view showing the separators
35 depressed and bearing upon the ring-rail and held there by the counterbalancing-weight. Fig. 3 represents a top view of a portion of one of the separators and of the holder which
40 connects it to the separator-rod. Fig. 4 represents a section on line 4 4 of Fig. 3. Fig. 5 represents a perspective view of said holder. Fig. 6 represents a side view of a portion of the separator-blade detached. Figs. 7 and 8
45 represent certain modifications relating to the holder that connects the separator-blades to their supporting-rod. Fig. 9 represents a modification hereinafter referred to.

The same letters and numerals of reference
50 indicate the same parts in all the figures.

In the drawings, *a* represents the roller-

beam, *b* the spindle-rail, *c* the ring-rail, and *d* one of the spindles of a spinning-machine, these parts being arranged relatively to each other in the usual or any suitable manner. 55 To the roller-beam *a* is attached a bracket *e*, which projects rearwardly and has pivoted to its rear portion at *f* an arm *g*, which is adapted to oscillate vertically and extends forward to the front of the roller-beam, its forward end 60 being extended upwardly and having a seat or bearing for the separator-rod *h*, said rod being affixed to the arm *g* by any suitable means, such as by a screw. The separators *h'* are secured to the rod *h* by suitable means, 65 preferably those hereinafter described.

i represents a lever which is pivoted at *i'* to an arm *e'*, formed on the bracket *e*. One end of the lever *i* is connected by a link *j* with the forward portion of the separator 70 supporting-arm *g*, and from the other end of said lever *i* is suspended a weight *k*.

m represents a vertical shaft, which is journaled in suitable fixed bearings *m'* *m*² and is provided near its upper end with a screw-thread *m*⁵ of rapid pitch. Said screw-thread 75 is engaged with a nut *n*, which is adapted to move up and down upon the rod *m* and is provided with a hook or lug *n'*, which projects over a stud *i*², affixed to the lever *i*, said stud 80 being arranged at the side of the pivot *i'* opposite to that to which the weight *k* is attached, so that the weight tends to hold the stud *i*² upwardly against the lug *n'* and permits said stud to be moved downwardly away 85 from said lug. The shaft *m* is rocked or rotated alternately in opposite directions by means of a segment-gear *m*³, affixed to the usual rocker-rod *o*, which imparts motion to the ring-rail through suitable mechanism, (not 90 shown,) and a gear *m*⁴, affixed to the lower end of the shaft *m* and meshing with the segment-gear *m*³, the usual oscillating or rocking motions of the rod *o* being imparted to the shaft *m* and causing its screw-thread *m*⁵ to alter- 95 nately raise and depress the nut *n*. When the nut is raised, its lug *n'* permits the weight *k* to descend and raise the opposite end of the lever *i*, and through the latter and the link *j* to raise the arm *g* and the separators sup- 100 ported thereby. When the nut *n* is depressed, its lug *n'*, acting on the stud *i*², forces the cor-

responding end of the lever i downwardly, carrying with it the arm g and the separators, the weight k being correspondingly raised. It will be seen that the described engagement
 5 between the lever i and the nut n enables the arm g and the separators thereon to be swung downwardly by the operator to the position shown in Fig. 2, the stud i^2 being thus separated from the lug on the nut n . The arrangement of the described parts is such that
 10 when the separators are thus moved downwardly the weight k is transferred to such a position that it will act to hold the separators in their depressed position against the ring-rail, as shown in Fig. 2. The weight k is of
 15 such size that a very light downward pressure on the separator-rod is sufficient to force the separators against the ring-rail, so that they are out of the way during the operation of
 20 doffing. When the separators are required for operation, a light upward pull on the separator-rod will restore the separators, the weight, and the intermediate parts to the position shown in Fig. 1. I thus provide simple
 25 and convenient means whereby the separators are enabled to be displaced in a downward direction, a result which is considered desirable in spinning-machines.

I do not limit myself to the described arrangement of the weight which supports the
 30 separators in their operative position, and may arrange said weight in any other suitable manner. For example, the arm g may have an extension g' projecting from the
 35 pivot f , the weight being located on the said extension of the arm, as shown in Fig. 9, so that it will constantly exert upward pressure on the separators. In this case the separators may be detained in their displaced position
 40 by means of a latch o , pivoted at o' to the roller-beam and provided with a weighted arm o^2 , which is arranged to press the latch forward and cause a recess o^3 in its lower end to engage a stud o^4 on the lever g when the
 45 separators are depressed. When it is desired to raise the separators, the latch o is pressed backwardly. The fixed stud o^4 , projecting under the weighted arm o^2 , limits the forward movement of the latch o by the said weighted
 50 arm.

In Figs. 3, 4, 5, and 6 I show the preferred means for securing the separators h' to the
 rod h , said means comprising a holder h^2 , composed of a single piece of comparatively
 55 thick sheet metal bent to form a socket 2 and two arms 3 3 projecting from one side of said socket, each arm having its edges bent to form a pair of ears 4 4, the outer ends of said ears being separated by spaces of sufficient
 60 width to receive the thickness of the separator-blade, and a screw h^3 , passing through orifices formed in the arms 3 3 and adapted to press said arms toward each other. The separator-blade is provided with a shank portion h^4 , formed to enter the space between
 65 the arms 3 3 and provided with a small tenon or projection h^5 upon one edge, which, when

the arms are pressed toward each other by the screw h^3 , is caused to enter a slot 5, formed in one of the arms 3, thus locking the blade
 70 to the holder h^2 . The separator-rod is here shown as semicircular in cross-section, its flat side being arranged to bear against the inner ends of the ears 3 3 and thus prevent the
 75 holder h^2 from turning on the rod.

In Fig. 7 I show a modification, in which the socket that receives the separator-rod is substantially circular to accommodate a circular rod, the holder being prevented from
 80 turning on the rod by means of indentations 6 6, formed in opposite sides of its socket portion, said indentations projecting into grooves or depressions formed in the separator-rod h .

In Fig. 8 the socket portion of the holder is formed to fit a separator-rod of oblong form
 85 in cross-section. The holders shown in Figs. 7 and 8 are in all substantial respects like those shown in Figs. 3, 4, and 5, the principal difference being in the form of the socket portion of the holder.
 90

I claim—

1. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod, the separators attached to said rod, an oscillatory support to which said rod is affixed,
 95 said support being movable to permit the downward displacement of the separators into contact with the ring-rail, and means for holding the separators in contact with the ring-rail.
 100

2. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod, the separators rigidly attached to said rod, an oscillatory support to which said rod is affixed, said support being movable to
 105 permit the downward displacement of the separators into contact with the ring-rail, and an adjustable gravity controlling device which normally exerts an upward yielding pressure on the separators and is caused by the downward
 110 movement of the separators to exert a downward yielding pressure thereon and hold them in yielding contact with the ring-rail.

3. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod, the separators rigidly attached to said rod, a vertically movable support to which said rod is rigidly attached, said support being adapted to yield downwardly to permit a
 115 downward displacement of the separators, and means for holding the separators and their support in a downwardly displaced position.
 120

4. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod and its separators, a vertically movable weighted support which presses said separators upwardly, and a vertically reciprocating operating device connected with the support and permitting the independent depression of the support.
 125
 130

5. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod, the separators thereon, a vertically movable support for said rod and separators,

and a pivoted lever loosely connected at one end with the said support and provided at its other end with a weight, the last mentioned end being movable to either side of a vertical passing through the pivot; whereby when said lever is in one position the weight exerts an upward pressure on the separators and when the lever is in another position the weight exerts a downward pressure on the separators.

6. In a spinning-frame, the combination with the spindle and ring-rail, of the separator-rod, the separators thereon, a vertically movable support for said rod and separators, a pivoted weighted lever loosely connected at one end with said support and provided at its other end with a weight, said lever and its weight being adapted to exert either an upward or a downward pressure on the said support, and a reciprocating operating device separably engaged with said lever and permitting its independent depression.

7. In a spinning-frame, the combination with the spindles and ring-rail, of the separator-rod, the separators thereon, a vertically movable support for said rod and separators, a pivoted weighted lever provided with a stud, a link connecting one end of said lever with said support, a weight connected with the

other end of said lever, a vertical rock-shaft having a screw-thread, and a nut engaged with said thread and vertically reciprocated thereby, said nut having a lug or projection bearing on the stud on the lever.

8. A sheet-metal separator-blade having a shank provided at one edge with an outwardly projecting tenon in the same plane with the blade, combined with a holder having grasping ears formed to engage the edges of said shank, one of said ears having a slot to receive said tenon.

9. A separator-blade holder comprising a single piece of sheet metal bent to form a socket, two arms projecting from said socket and each provided with blade-grasping ears, one of said arms having a slot to receive a tenon on the blade, and a screw engaged with said arms and adapted to press the same toward each other.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 20th day of April, A. D. 1895.

EDWARD WHITTUM.

Witnesses:

C. F. BROWN,

A. D. HARRISON.