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PATENTED MAR. 21, 1905.

J. & L. H. BOND.
ATTACHMENT FOR SPINNING MULES.

APPLICATION FILED APR. 27, 1904.

2 SHEETS—SHEET 1.

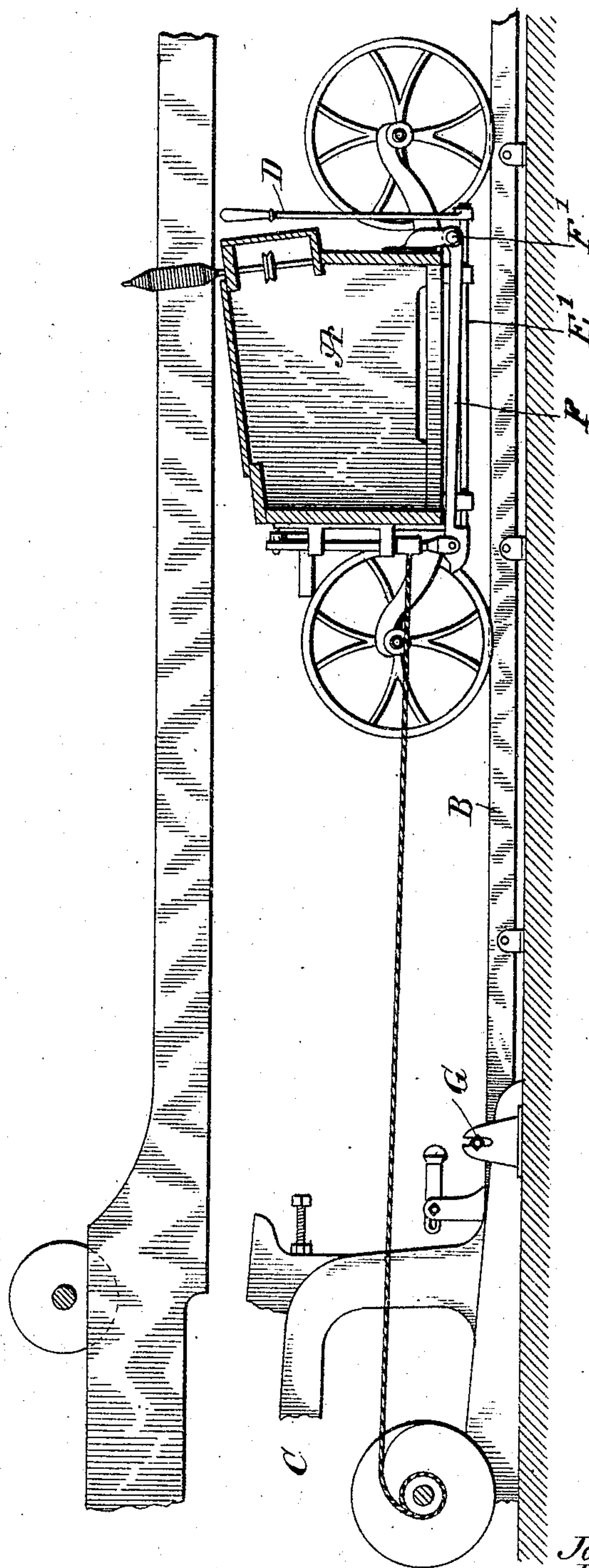


Fig. 1

WITNESSES:

H. Walker

Rev. G. H. H. H.

INVENTORS

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2 SHEETS—SHEET 2.

Fig 2

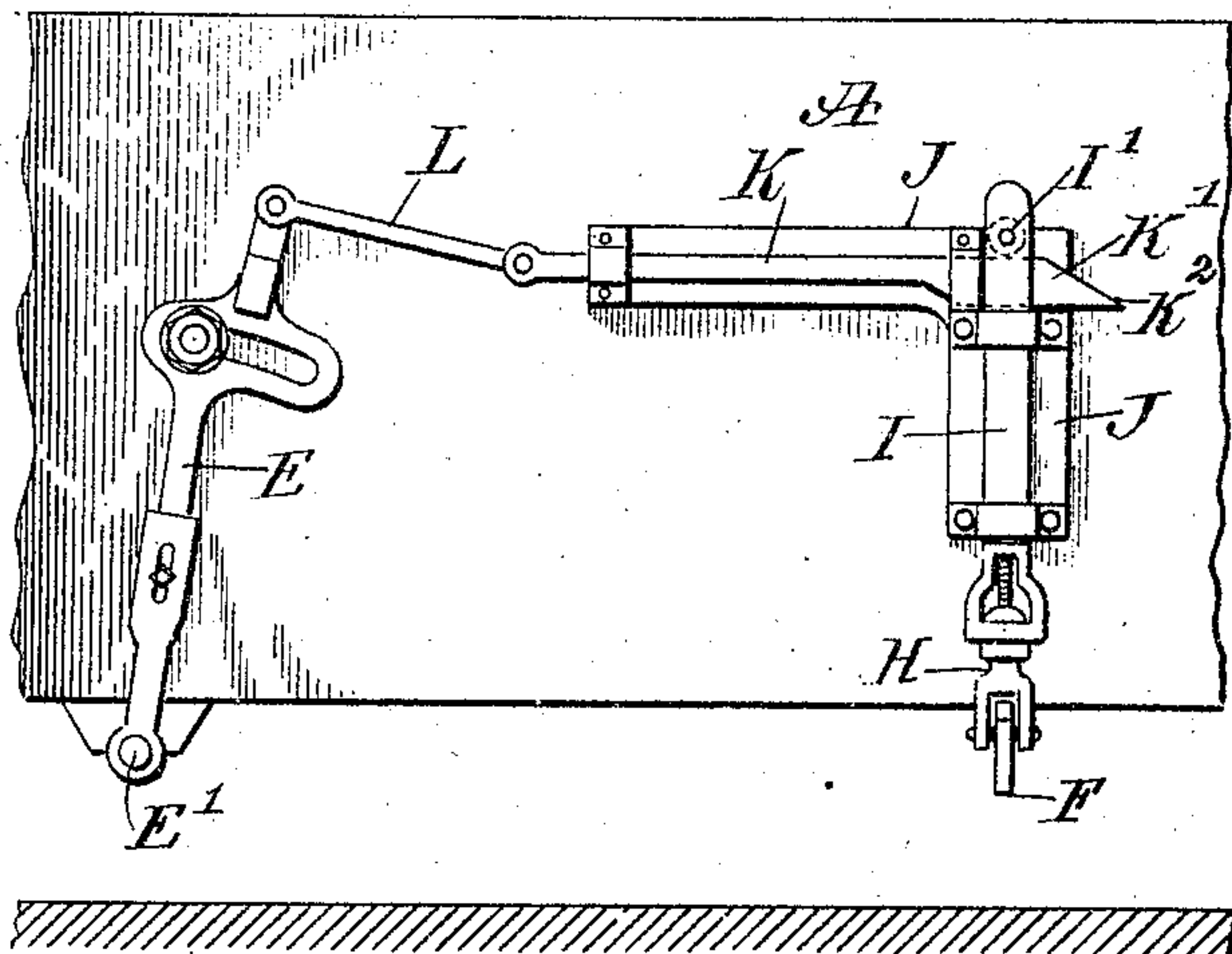


Fig 3

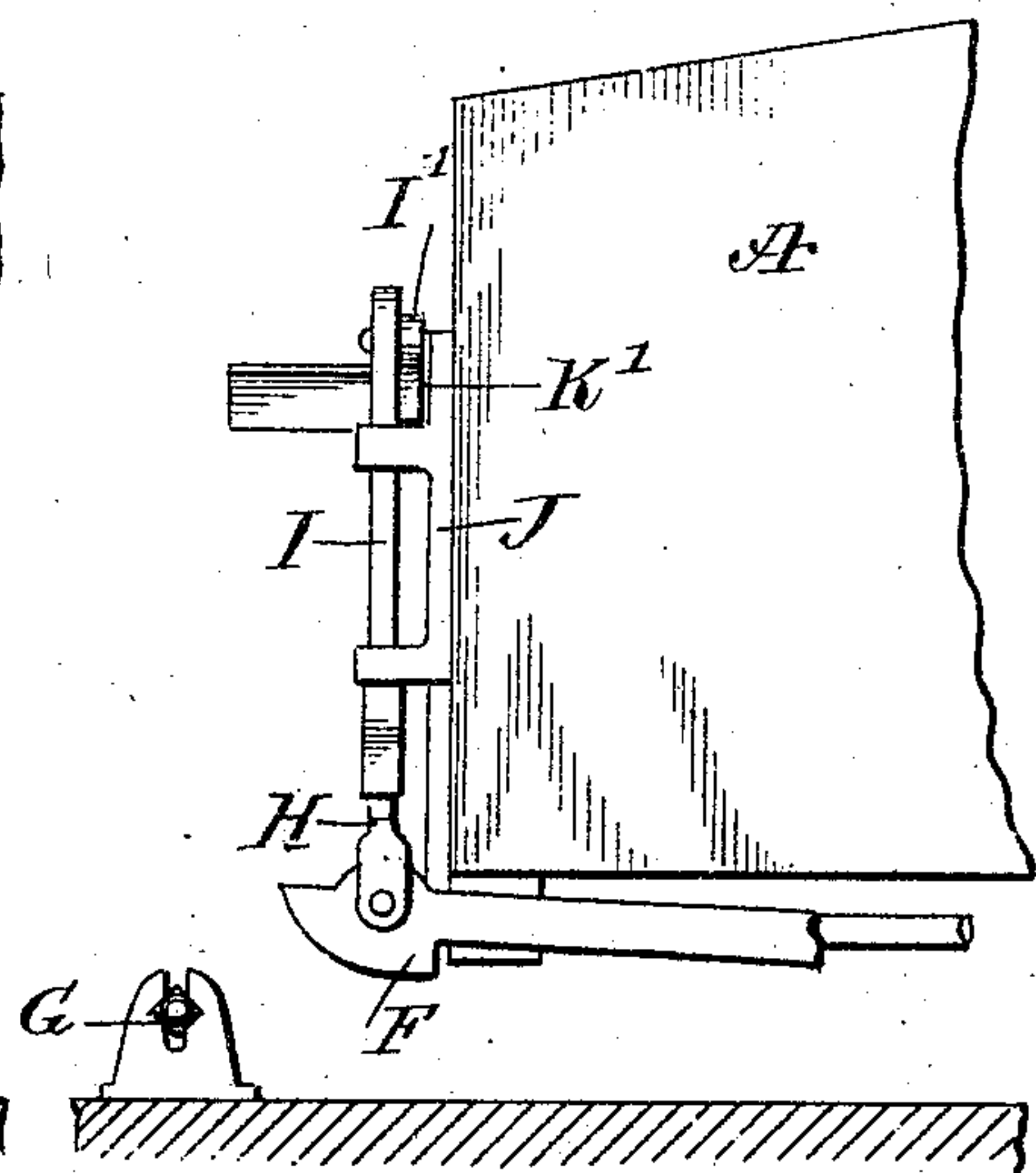
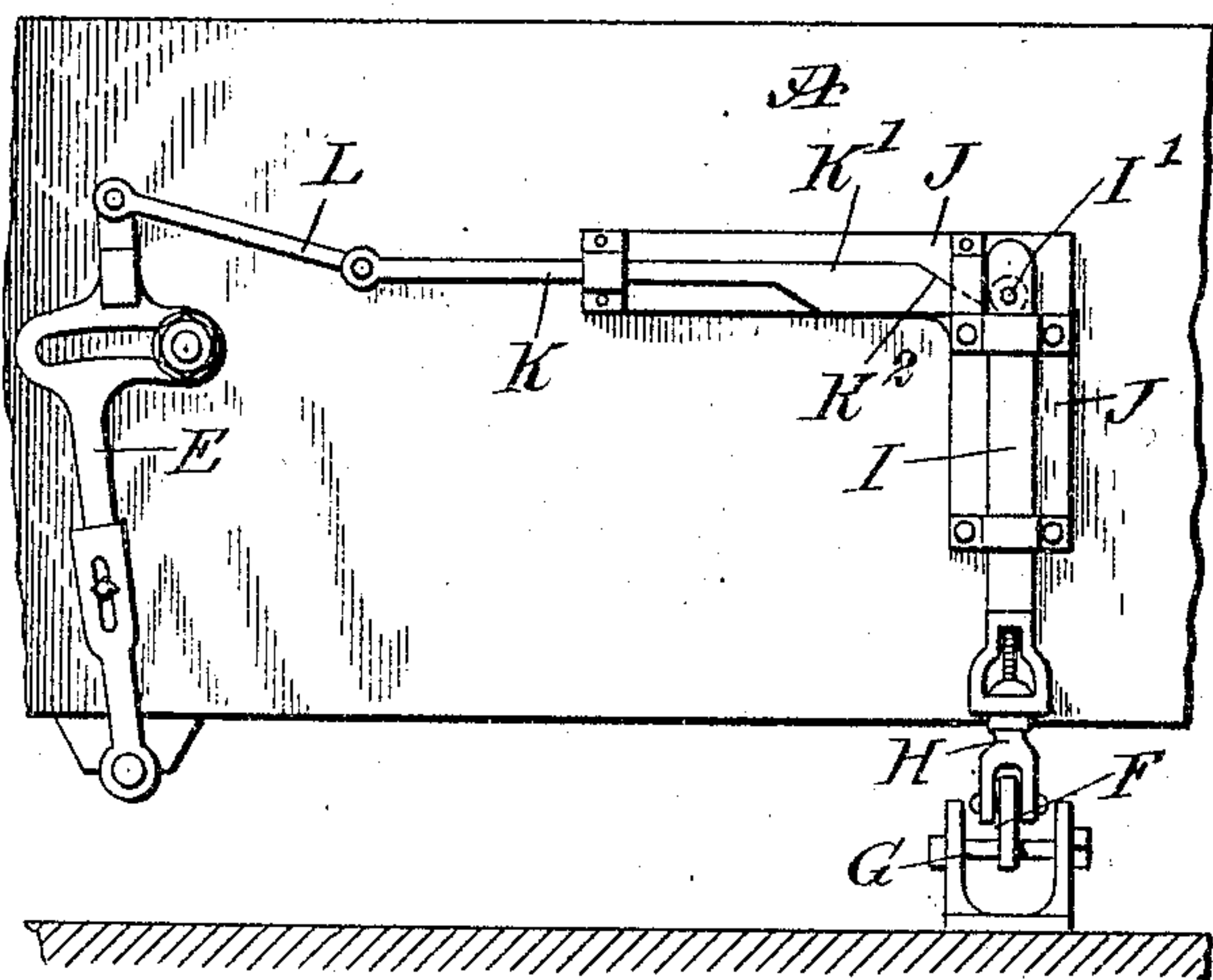


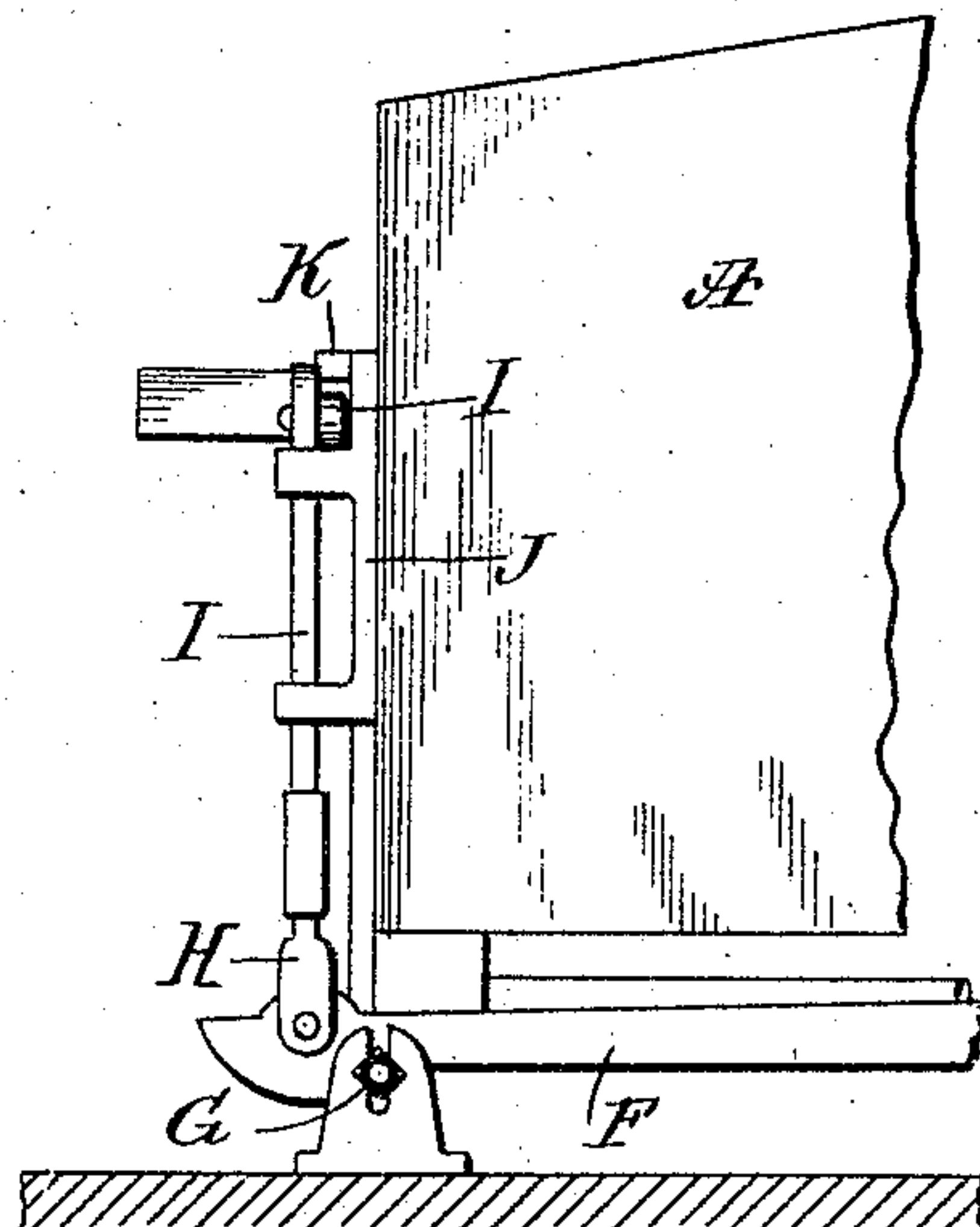
Fig 4



WITNESSES:

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Fig 5



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UNITED STATES PATENT OFFICE.

JOHN BOND AND LEVI H. BOND, OF WATERLOO, NEW YORK.

ATTACHMENT FOR SPINNING-MULES.

SPECIFICATION forming part of Letters Patent No. 785,470, dated March 21, 1905.

Application filed April 27, 1904. Serial No. 205,086.

To all whom it may concern:

Be it known that we, JOHN BOND and LEVI H. BOND, citizens of the United States, and residents of Waterloo, in the county of Seneca and State of New York, have invented a new and Improved Attachment for Spinning-Mules, of which the following is a full, clear, and exact description.

The invention relates to spinning; and its object is to provide a new and improved attachment for spinning-mules to securely lock the carriage in position when stopped to prevent rebound of the carriage and imperfect formation of the yarn.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement as applied. Fig. 2 is an enlarged face view of the improvement, showing the carriage-locking device in an inactive position. Fig. 3 is a side elevation of the same. Fig. 4 is an enlarged face view of the improvement, showing the carriage locked in place; and Fig. 5 is a side elevation of the same.

The mule-carriage A, carrying the spindles, is mounted to travel on rails B and is caused to recede from the roving-drum and to travel toward the same by the usual actuating mechanism on the head-stock C, and the changes in the travel of the carriage are automatically produced by the ordinary changing device—such, for instance, as is shown in United States Patent No. 272,401, February 20, 1883, granted to E. A. Baldwin. In mules of this character when the lever E of the travel-changing device, which is on the carriage, is thrown by the operating-lever D to the right or in the position shown in Fig. 2 the said lever when the carriage approaches the head-stock operates upon the actuating mechanism thereof to cause the said mechanism to start the carriage on its outward movement, so that when the

lever is in this position the travel of the carriage is continuous. When, however, the lever E is thrown to the left or in the position shown in Fig. 4, the said lever does not operate the actuating mechanism, and consequently the said mechanism is rendered inactive and the carriage stops.

The carriage by its acquired momentum rebounds when stopped, and to prevent this rebound a locking device is provided to securely hold and lock the carriage A in place the moment it is stopped. By preventing the rebound of the carriage a subsequent imperfect formation of the yarn is prevented, as the forcible rebound of the carriage tends to unduly stretch the yarn, thus rendering the same weak or imperfect. The locking device consists, essentially, of a hook F extending longitudinally under the carriage A and fulcrumed at F' to the carriage, as plainly indicated in Fig. 1. The hook F is adapted to engage a keeper G, fixed to the floor or to the frame of the head-stock C, so that when the carriage A reaches the end of its return stroke and is stopped the hook F is in a lowermost position and engages the keeper G, and thereby locks the carriage against rebounding. While the carriage A is on its ordinary travel toward and from the head-stock the hook F is held in an uppermost position, as shown in Figs. 1, 2, and 3, so that the head of the hook does not engage the keeper G, and consequently the locking device for the carriage does not interfere with the latter as long as the carriage is traveling forward and backward during the spinning operation. The hook F is, however, automatically swung downward to engage the keeper G, as previously described, whenever the lever D is thrown over to bring the stopping device for the carriage A into action and the carriage has been stopped, and for this purpose the free end of the hook F is connected by a link H with a slide I, mounted to slide up and down in suitable bearings formed on a bracket J, attached to the carriage A, and on the upper end of the slide I is journaled a friction-roller I', normally resting on the top edge of the head K' of a bar K, mounted to slide transversely in suitable bearings arranged on the

bracket J. The bar K is pivotally connected by a link L with the upper end of the lever E, secured at its lower end on the shaft E', on which the stopping-lever D is secured.

5 The free end of the head K' of the bar K is provided with a bevel K², so that when the stopping-lever D is thrown over by the operator and the lever E swings into the position shown in Fig. 4 to stop the carriage then this
10 lever by the link L imparts a transverse sliding motion to the bar K, so that the beveled end K² travels under the friction-roller I', whereby the slide I and link H by their own weight move downward to swing the hook F
15 into the lowermost position and into engagement with the keeper G, as shown in Figs. 4 and 5, to lock the carriage as soon as it is stopped and prevent rebounding of the same, as previously mentioned.

20 When the lever D has been thrown to its former position and the lever E swung to the position shown in Fig. 2, the starting mechanism for the carriage will be thrown into active position, and simultaneously therewith
25 through the medium of the link L a sliding motion is imparted to the bar K, so that the beveled end K² thereof acting on the friction-roller I' causes an upward sliding of the slide I and link H to swing the hook F upward out
30 of engagement with the keeper G to unlock the carriage. The hook F remains in the inactive position described during the travel of the carriage and until the lever D is thrown over again to stop the carriage, as previously
35 described.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

40 1. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding when stopped, the said locking device being automatically controlled from the stopping device of the carriage.

45 2. A spinning-mule provided with a hook mounted to swing on the carriage, means controlled from the stopping device of the carriage for operating the hook, and a fixed keeper at the head-stock of the machine, adapted to be engaged by the said hook.

50 3. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding when the latter stops, said locking device comprising a fixed keeper near the head-stock, a hook mounted to swing on

the carriage, a slide connected with the hook, and mechanism for operating the slide from the stopping device for the carriage.

4. A spinning-mule provided with a locking device for automatically holding the carriage against rebounding, said locking device comprising a fixed keeper near the head-stock, a hook mounted to swing on the carriage, and mechanism connecting the said hook with the stopping device for the carriage, the said mechanism consisting of a slide connected
with the free end of the said hook, a bar having a beveled edge, adapted to engage the said slide, to raise and lower the same and a link connecting the said bar with a movable part of the stopping device for the carriage.

5. In a spinning-mule, the combination with the carriage, and a pivoted lever constituting a part of the stopping device for the carriage, of a pivoted hook carried by the carriage, a slide on the carriage and pivotally connected
with the hook, a sliding bar having a beveled end adapted to engage the slide to raise the same, the slide falling by gravity when released, a link connecting the bar with the pivoted lever, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

6. In a spinning-mule, the combination with a carriage, and a pivoted lever constituting a part of the stopping device for the carriage, of a pivoted hook on the carriage, a slide pivotally connected with the hook, a sliding bar pivotally connected with the said lever and engaging the slide to raise the same, the slide falling by gravity, when released, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

7. In a spinning-mule, the combination with a carriage, and a movable member constituting a part of the stopping device for the carriage, of a pivoted hook on the carriage, mechanism for operating the hook from the said movable member, and a fixed keeper near the head-stock and with which the hook is adapted to engage.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN BOND.
LEVI H. BOND.

Witnesses:

H. I. BUTTERY,
D. H. BERRY.