

A. H. KNAPP.
Curtain-Fixtures.

2 Sheets--Sheet 1.

No. 154,400.

Patented Aug. 25, 1874.

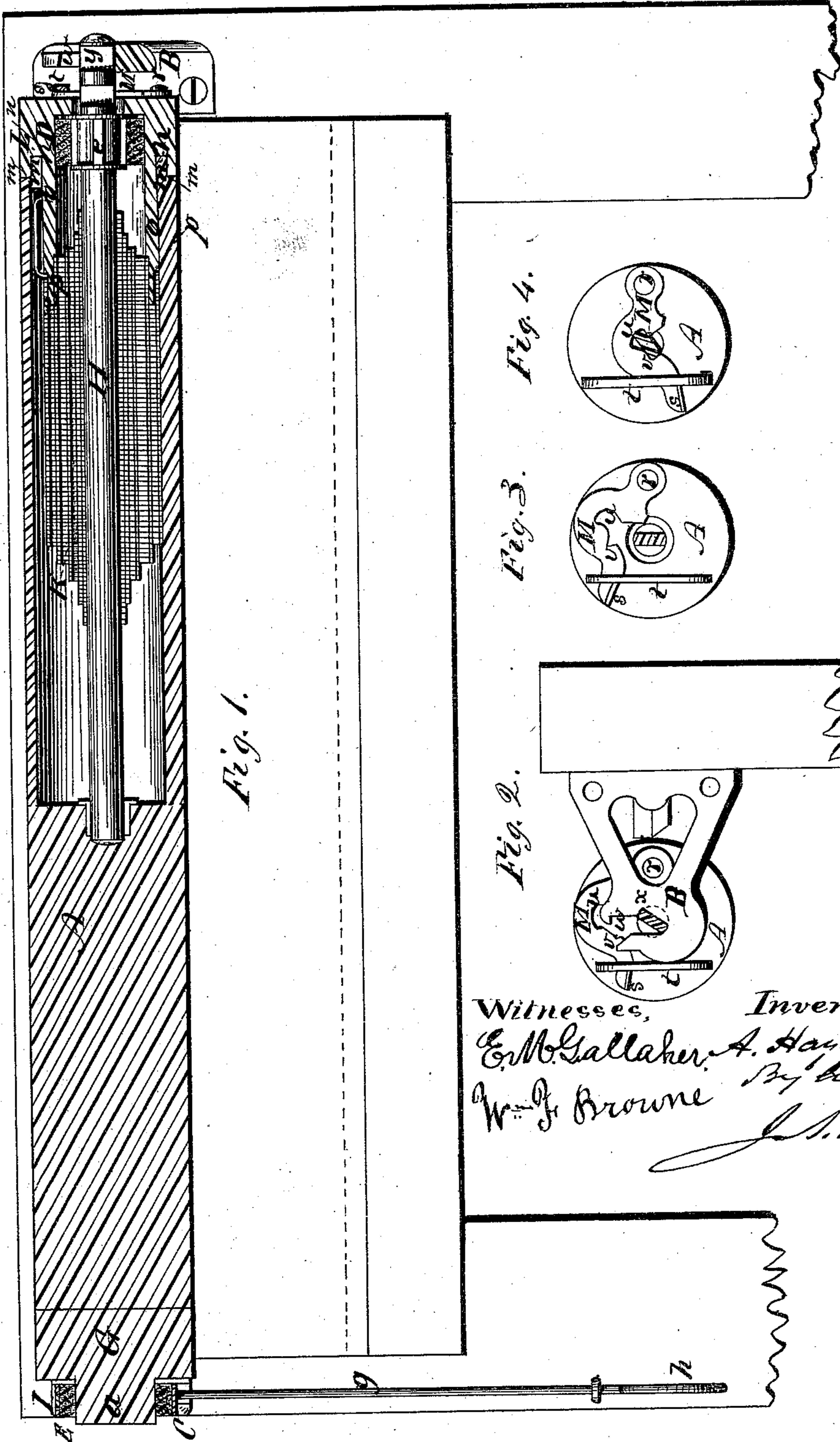


Fig. 1.

Fig. 4.

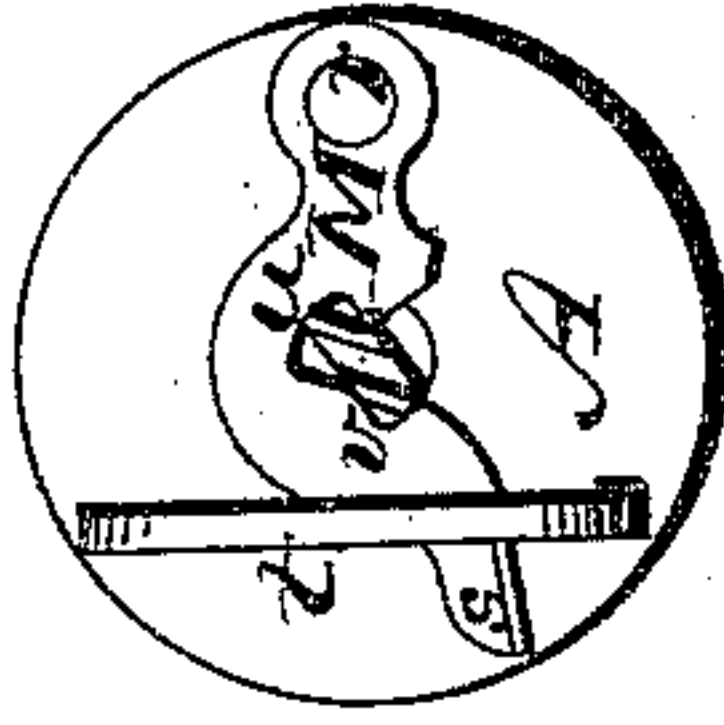


Fig. 3.

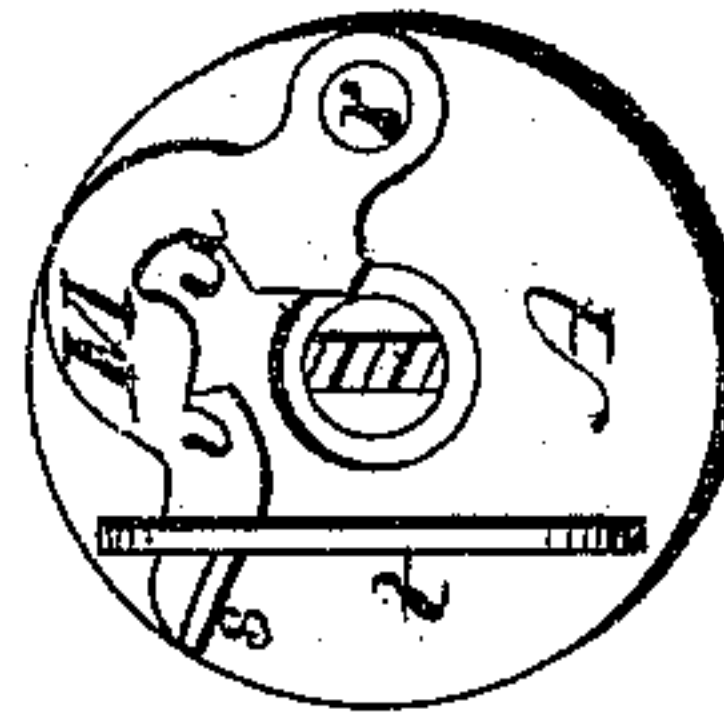
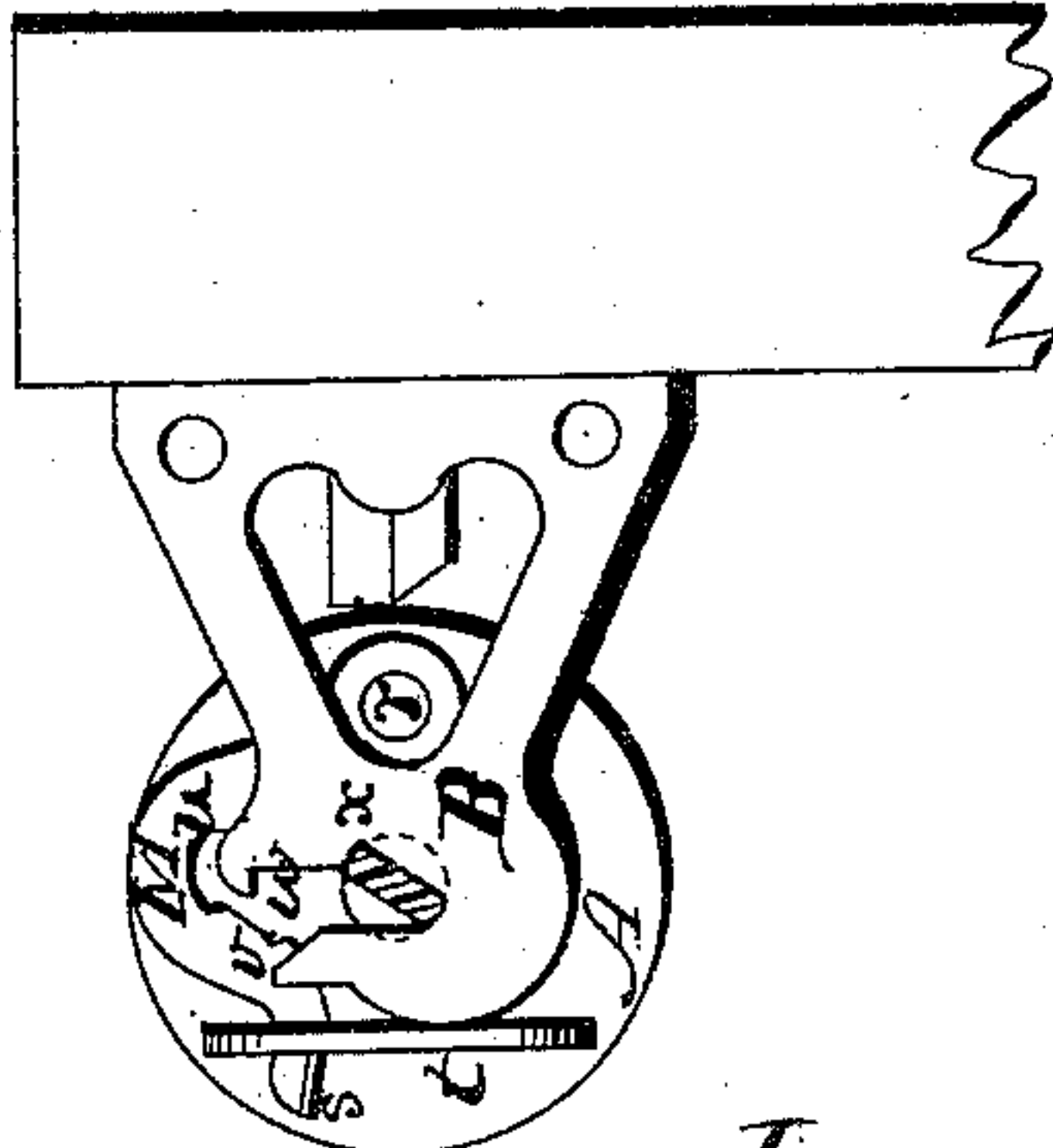


Fig. 2.

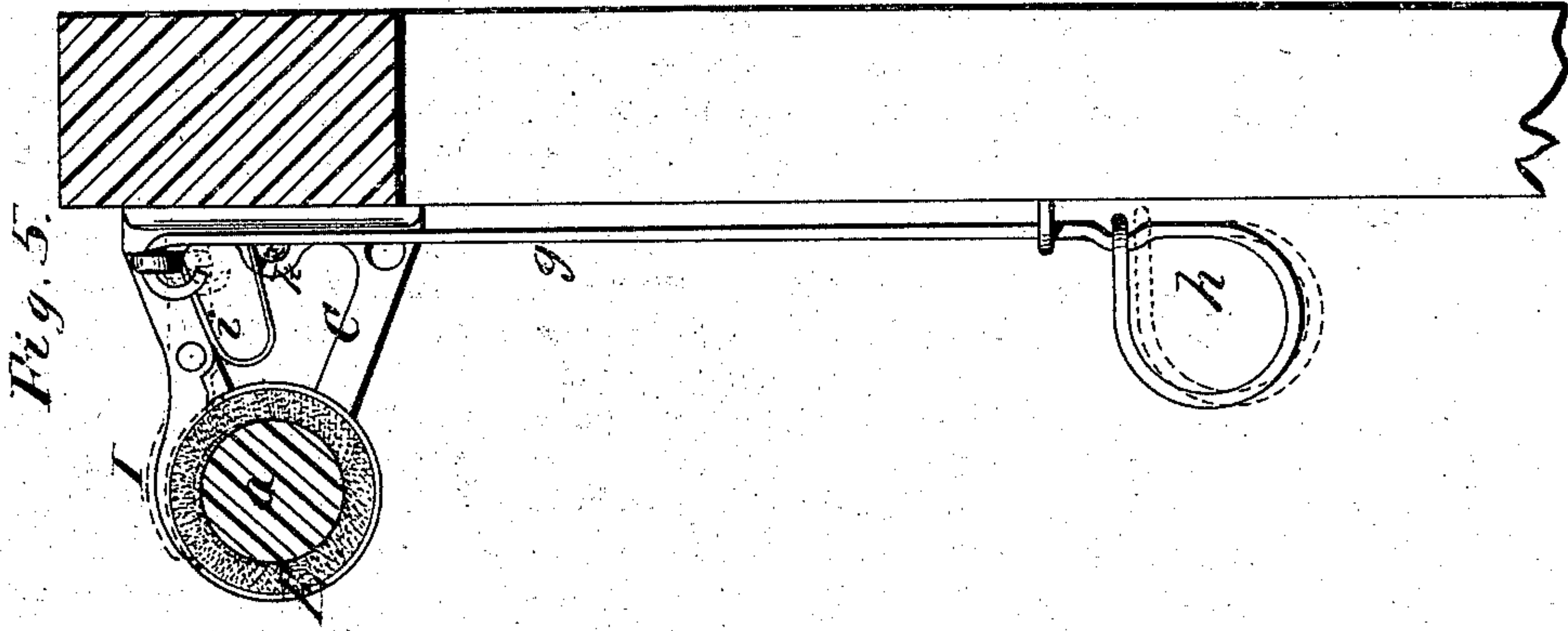
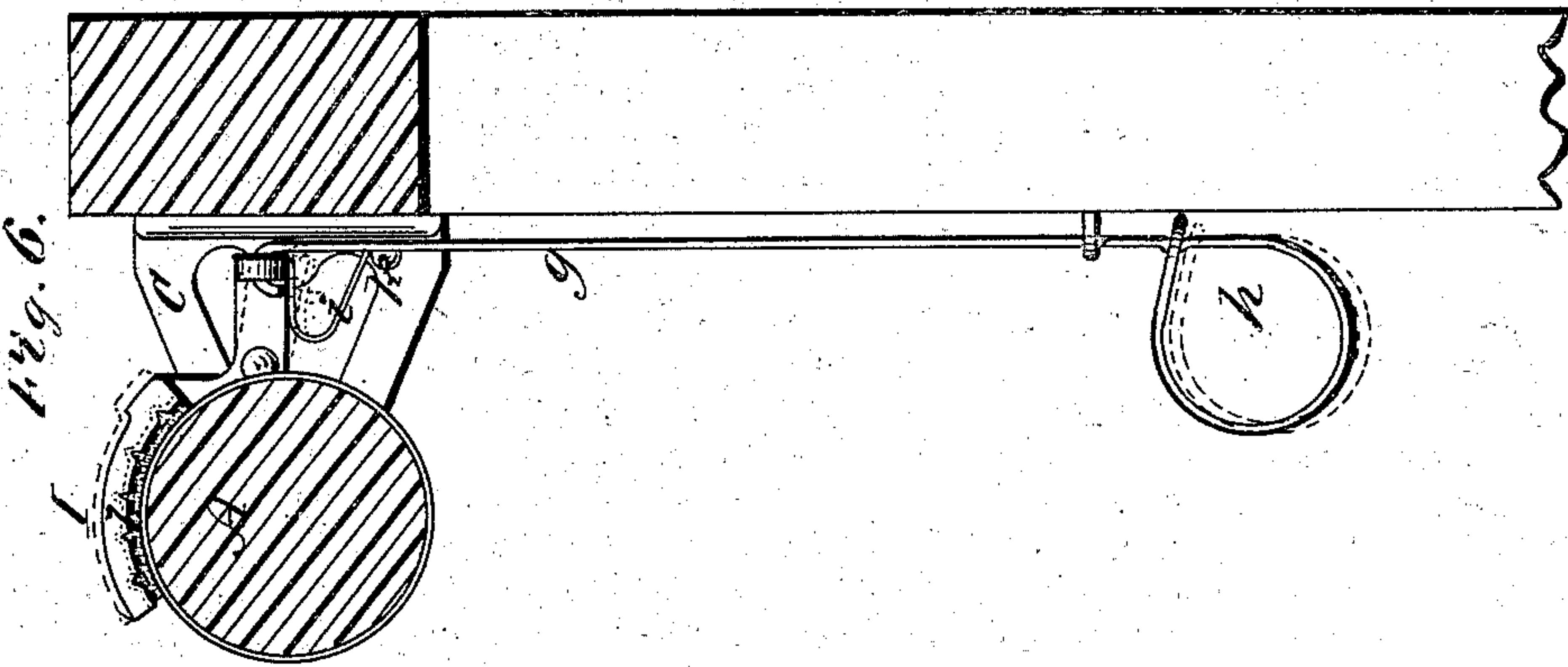
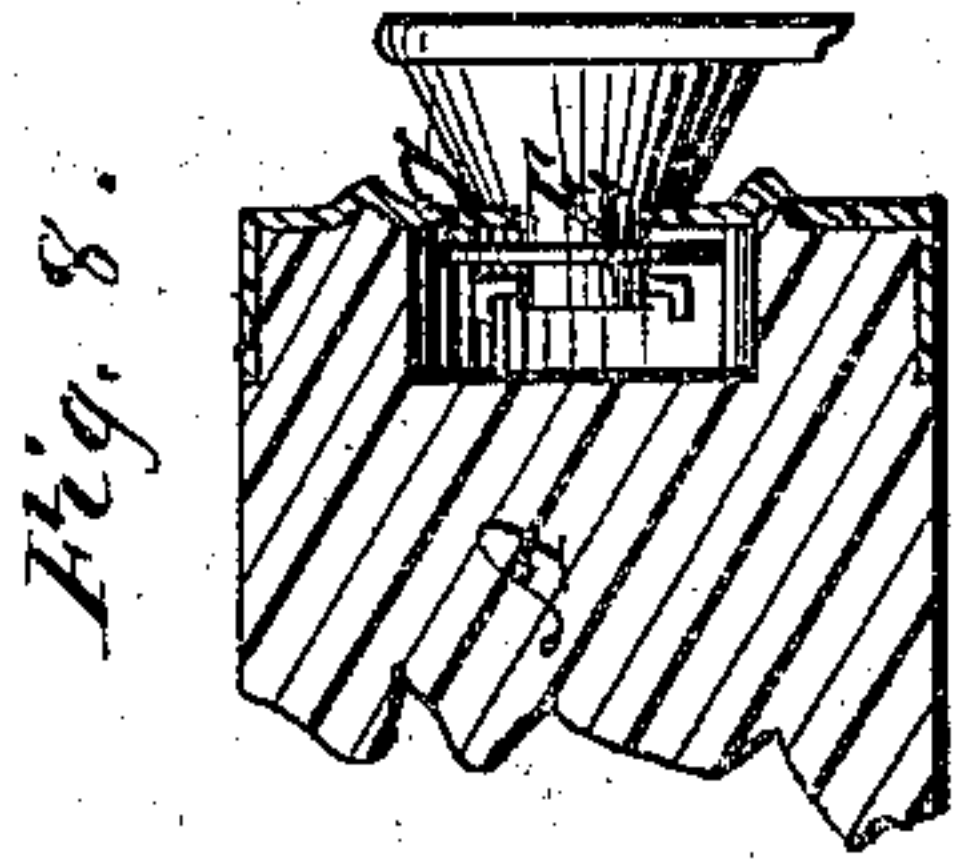
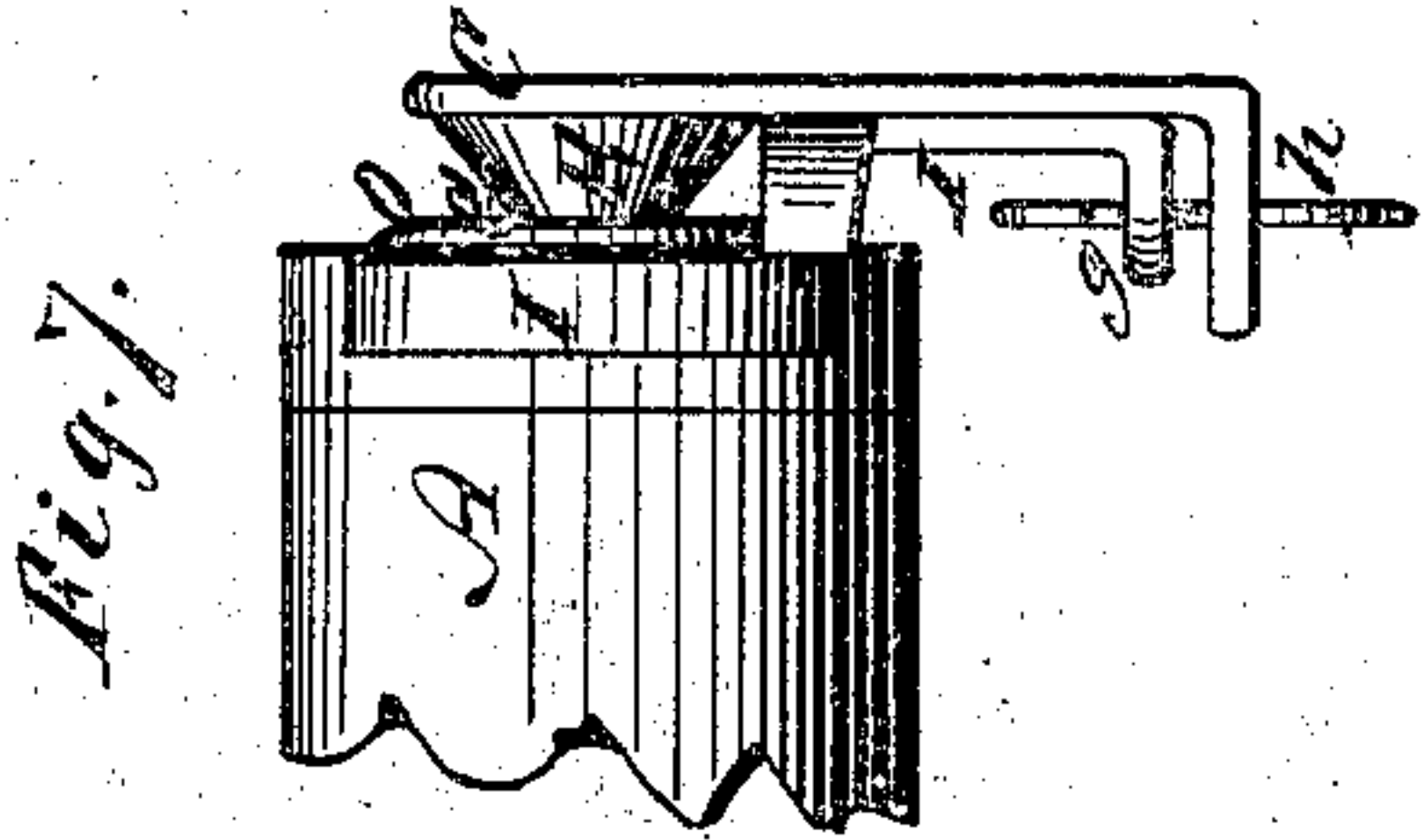


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UNITED STATES PATENT OFFICE.

A. HAYDN KNAPP, OF BRIGHTON, MASSACHUSETTS.

IMPROVEMENT IN CURTAIN-FIXTURES.

Specification forming part of Letters Patent No. 154,400, dated August 25, 1874; application filed November 14, 1873.

To all whom it may concern:

Be it known that I, A. HAYDN KNAPP, of Brighton, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Curtain-Fixtures; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings making part of this specification—

Figure 1 being a central axial section of a curtain-roller and brackets constructed with my improvements; Fig. 2, a side elevation of the pivot-shaft bracket and end view of the curtain-roller in place; Figs. 3 and 4, end views of the spring end of the curtain roller, respectively, showing different positions of the spring locking device, the pivot-shaft being in cross-section; Fig. 5, a transverse vertical section of the free bearing of the roller and the inner side elevation of its bracket; Fig. 6, a view corresponding to the view in Fig. 5, but showing a modified construction of the parts; Figs. 7 and 8, respectively, top view and central axial section of the free end of the roller and of the bracket supporting it, with the same modified construction of parts as in Fig. 6.

Like letters designate corresponding parts in all of the figures.

There are in this invention several distinct features of improvement, which I will describe in succession.

My first improvement consists in the employment of felt for the bearings or journals of the roller, whereby very valuable results are effected: First, the peculiar and very uniform friction produced, whether it comes in contact with wood or metal, is especially adapted to balance spring fixtures, wherein it is difficult or impossible to so adjust the length and strength of the spring to the varying sizes and weights of shades that it will balance the same equally at the top and bottom of the window, balance-shades being apt to run up at the bottom and run down at the top of the window; but the friction of the felt as a bearing or journal is such that the spring may be adjusted to sufficient strength at the top to hold the shade close up, and yet not be so strong as to overcome the friction when the shade is lowered to the bottom of the window. Second, the

softness of the material is such that it never produces the slightest creaking, either in contact with wood or with metal—an objection so prevalent and annoying with journals or bearings made of wood or metal. Third, the elasticity, strength, and durability of the wool of which felt is made are so great that journals and bearings made of felt will wear for an indefinite length of time without injury thereto. Fourth, the evenness of its quality and unchangeableness under extremes of heat and cold, dryness, and moisture are so great that it never sticks nor ceases to work well, either in summer or in winter. Fifth, its elasticity enables it to adapt itself to any unevenness or irregularity of the surface with which it is in contact, so that the roller runs with great facility and uniformity under all ordinary circumstances.

The felt may be employed either as a bearing or as a journal. I find it convenient to use a felt journal, D, at the spring end of the roller A, and a felt bearing, E, in the bracket C, at the other end of the roller. This bearing, as represented, takes the form of a ring or bushing, secured inside of the bracket-case by shellac or equivalent means.

In order to command a frictional surface of felt sufficient in extent, and of adequate resistant leverage for the purpose, to meet the requirements of all sizes of shades, I use roller-journals considerably larger than those ordinarily used for spring-balance fixtures. For use to run in the felt bearing E a simple wooden journal may be turned on the end of the roller A; or, as shown in the drawings, the journal *a* is formed of the requisite size, on a separate block, G, whether made of wood or metal; but in order to securely attach the felt journal D to the pivot shaft or rod H, which is much smaller in diameter than the journal is designed to be, and to avoid the necessity of making the pivot any larger in diameter than required to fulfill its own function, I cast a soft-metal enlargement, *e*, thereon, there being depressions or irregularities previously formed in the surface of the pivot, to cause the soft metal to adhere thereto firmly, and not be wrenched loose thereon. The periphery of this enlargement also has notches and wings,

or alternate projections and depressions, as seen in Fig. 1, to receive the felt previously cut into corresponding form to fit over the same.

Another feature of my invention consists in a felt rubber friction-brake applied to a balance-spring curtain-fixture, operating with an overbalance spring—that is, a spring which is adjusted to a strength sufficient to run the shade up without momentum when the pressure of the brake is removed.

As represented in the principal figures of the drawings, the friction-brake I is caused to press upon the outer surface of the felt bushing E in the bracket C, so as to present no bearing-surface except of felt to the roller, and the brake-lever is mounted on the same bracket. It is provided with a cord or wire, *g*, extending downward to within easy reach of any person who may wish to raise or lower the shade, and terminating in a ring, knob, or tassel, *h*, to seize it by.

The principal use of this friction-brake, operated by a hand-pull, is, by raising the same, to allow the shade to rise automatically by the force of its spring when it is run up beyond the direct reach of the hand, even to the top of the highest windows, and also for convenience in raising the shade when it is drawn down to the window-sill or below easy reach of the hand to save stooping. The force of the spring and pressure of the brake are so adjusted that the brake, when bearing upon the roller, holds the shade at any height, but does not prevent the raising of the shade by lifting the weighted stick or tassel at the bottom, so that the shade may be raised and lowered by the direct application of the hand thereto, notwithstanding the pressure of the brake. The force of the spring *i* of the brake may be varied by an adjusting-screw, *k*, as shown in Figs. 5 and 6, or otherwise.

In the use both of the felt bearing-surface and of the felt friction-brake, with the shade-rollers, I sometimes use a modification, as shown in Figs. 6, 7, and 8. Here, instead of a felt bearing or journal, I use a small metallic journal, E, and metallic or wooden bearing O, and arrange the friction-brake I so as to press directly upon the roller upon the periphery, as shown in the drawings, and make a rubber, *l*, of felt, to bear upon the roller. This rubber may have as large a surface as required, and may fulfill the desirable functions of the felt journal to greater or less perfection, while the small metallic journal is but little liable to creak. This modification answers for the cheaper fixtures, although for the best shade-fixtures I prefer the construction first specified.

For these spring-balance fixtures I make the roller entirely of wood, boring one end for the reception of the balance-spring K and its pivot-shaft H, and a wooden cap-block, L, fits upon the end thereof. There is a tubular tenon, *m*, on the bored end of the roller, and an annu-

lar mortise or depression, *n*, in the end of the cap-block, to fit over the said tenon. Inside of this annular space a tubular extension, *o*, of the cap reaches into the bore of the roller, and a thinner smaller extension, *p*, projects beyond that a little way, between the outer layer and the next inner layer of the spring K, for the purpose set forth in the Letters Patent for curtain-fixtures issued to me July 30, 1872, in which a tube is specified having the same use.

Another feature of my invention consists in the employment of a peculiar locking device attached to the spring end of the roller A, so constructed and operating as to lock or hold the pivot-shaft E from turning, and consequently to prevent the uncoiling of the spring when the shaft is taken out of its bracket B. As represented in the drawings, this locking attachment consists of a simple latch, M, pivoted at *r* to the roller-cap, provided with a knob or projection, *s*, to seize and move it by, limited in the extent of its movement by a guard, *t*, and having a notch, *u*, which fits over a flattened or squared portion of the pivot-shaft H, so as to hold the same from turning when the latch is slipped over it, so as to embrace the same. The peculiar form of the notch *u*, with another notch, *v*, in one edge thereof, is such that when the pivot-shaft E enters notch *u*, and is turned therein, by the force of the spring in the roller, as far as it can be, the latch M will not unlock until the pivot is again inserted into the bearing of the bracket B, which takes the torsional force of the spring, and thereby again leaves the lock-latch free to be raised from the pivot.

Another feature of my invention consists in a notch, *y*, in, or double shoulders on, the pivot E, so as to embrace the bracket B and prevent all play or movement of the roller endwise. This device is of value, since it keeps the roller always in proper relation to the bracket B, and prevents its ever becoming crowded over against the other bracket, C, to which otherwise it is liable, so as to cause much friction on the same, since the torsional force of the spring is so great, acting through the pivot E on the bracket B, as to forcibly hold the roller in any position in which it may happen to be placed, or moved endwise.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A journal or bearing for curtain-rollers, having a bearing-surface of simple felt, substantially as and for the purpose herein specified.
2. The soft-metal enlargement *e*, cast upon the pivot-shaft of the curtain-roller, and having a notched or winged periphery, in combination with the felt journal cut in the form to fit thereon, for the purpose herein specified.
3. A felt-rubber friction-brake, in combination with a spring-overbalance curtain-fixture, as herein specified.

4. The pivot-shaft-locking device attached to the curtain-roller, consisting of the latch M, formed with the double notch *u v* to receive the flattened or square part of the pivot-shaft, as described, so that the latch will not unlock when the roller is out of the brackets, substantially as herein specified.

5. The notched pivot-shaft E, in combina-

tion with the bracket B, substantially as and for the purpose herein specified.

Specification signed by me this 23d day of August, 1873.

A. HAYDN KNAPP.

Witnesses:

J. S. BROWN,
EDM. F. BROWN.