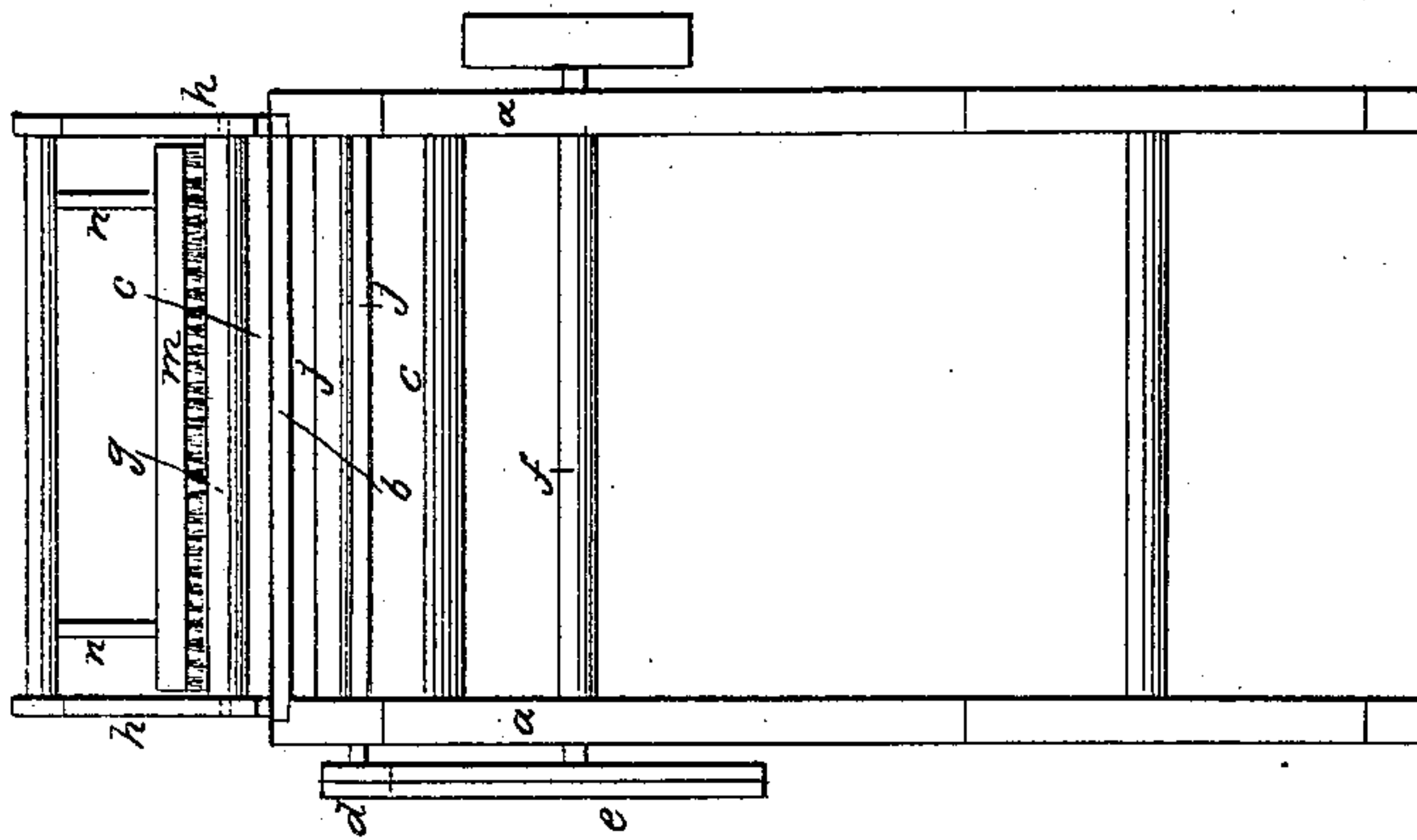


Roller Cotton Gin.

Patented Nov. 20, 1855.

Fig: 2.



1824

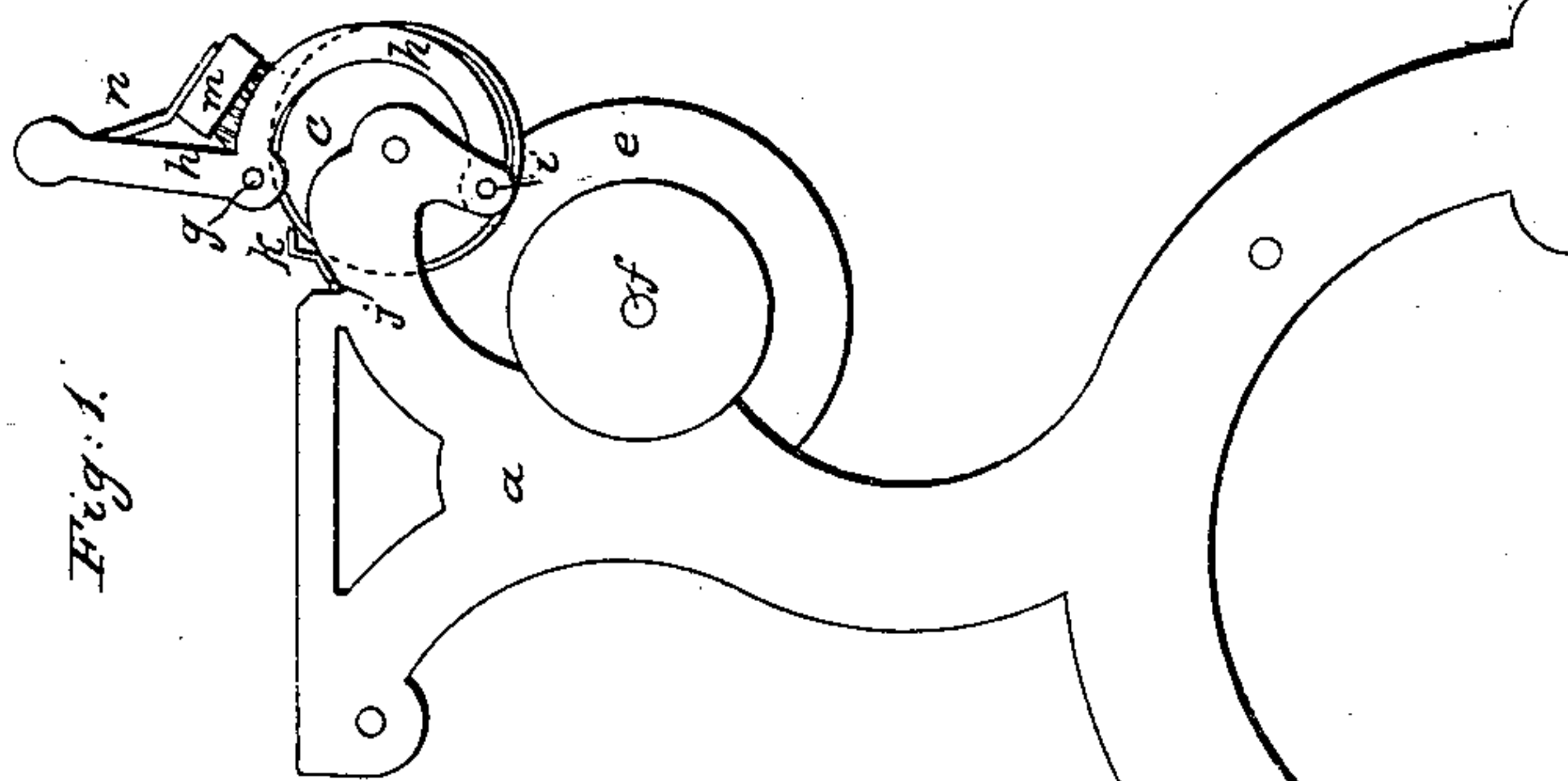
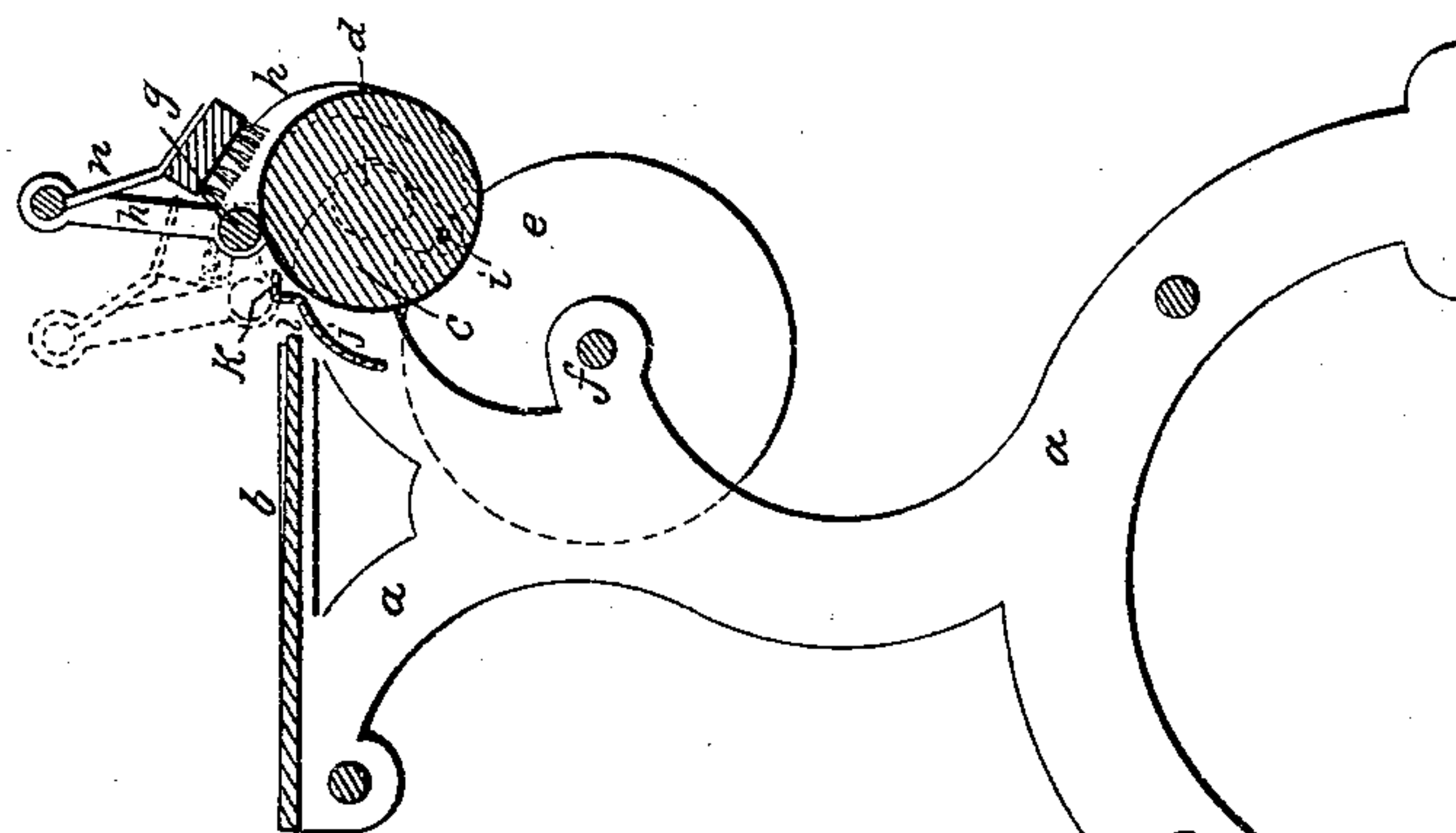


Fig: 3.



Wm H Bishop.
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Sam^l J. Chichester.

UNITED STATES PATENT OFFICE.

L. S. CHICHESTER, OF NEW YORK, N. Y.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 13,815, dated November 20, 1855.

To all whom it may concern:

Be it known that I, L. S. CHICHESTER, of the city, county, and State of New York, have invented certain new and useful improvements in roller-gins for separating sea-island or long-staple cotton from the seeds, which improvements are also applicable to the ginning of all kinds of cotton; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a front elevation, and Fig. 3 a longitudinal vertical section.

The same letters indicate like parts in all the figures.

In my said invention two rollers are used—one a large roller covered with leather, india-rubber, or other equivalent substance, and the other a small metal roller, as in ordinary roller-gins; but as heretofore constructed and operated the trough-like space forward of the bite of the two rollers soon becomes filled with seeds, which are there held by a few remaining fibers which still adhere to the seeds, and which are partly held by the bite of the rollers. When the gin is in this condition, the seeds which have thus accumulated prevent the approach of fresh pods of cotton to the bite of the rollers, and if the attempt be made to force the fresh pods toward the bite of the rollers the seeds which have been nearly stripped are thereby forced toward and crushed by the rollers, to the serious injury of the staple and to the rollers. It has also been found that the fibers of cotton frequently adhere to the surface of the rollers, particularly the soft or elastic roller, and the fibers so adhering are carried around and repassed through the bite of the rollers, where they become injured and impede the stripping action of the rollers.

The object of my invention is to avoid the difficulties above named and others not necessary to be enumerated; and my said invention consists in giving to one or both of the rollers a separating movement or movements in or nearly in a line tangent to the periphery of one or both of the rollers, for the purpose of pushing the seeds away from the bite of the rollers after the fibers have been stripped or nearly stripped from them, while at the same time the surfaces of the two rollers are

separated to liberate their bite or hold of the fibers that may still adhere to the seeds. In this way the seeds which have been stripped can be readily removed from the trough-like space in front of the rollers, that a fresh supply of pods may be supplied; and my said invention also consists in combining with the rollers having the separating movement above stated a guard or discharge plate with the edge placed nearly in contact with the surface of one of the rollers near and in front of the bite of the two rollers, which said plate has a swell back of the edge, so that as the rollers are separated the said plate shall act as a rest and stripper, over which the seeds are discharged, and by which the adhering fibers are separated from the soft or elastic roller; and my said invention also consists in combining with the rollers a brush the bristles of which are placed in contact with the periphery of the two rollers, to brush off the fibers which may adhere thereto, and to roll up and collect the fibers as they are separated from the seeds, the said brush being occasionally separated from the surface of one of the rollers for the discharge of the fibers which have been collected.

In the accompanying drawings, *a* represents a suitable frame, with a feeding-table, *b*, on which the pods of cotton to be ginned are laid and spread by an attendant. Just back of the rear edge of the table there is a larger cylindrical roller, *c*, covered with leather. The journals of its shafts are mounted in suitable boxes in the usual manner, and on one end of the shaft there is a pulley, *d*, receiving a band from a wheel, *e*, on the driving-shaft *f*, by which rotary motion is imparted to the roller.

Immediately above the roller *c* is placed a small cylindrical metallic roller, *g*, the journals of which are mounted in a swinging frame, *h*, the lower end of which turns on fulcrum-pins at *i i* below the axis of the lower roller, *c*. When this swinging frame is thrown back in the position represented by full lines in Fig. 3, the peripheries of the two rollers are in contact, and the upper small roller, by reason of this contact, is rotated by the motion of the lower roller; but when the swinging frame is moved forward to the position represented by dotted lines in Fig. 3 the peripheries of the two rollers are separated, the periphery of the upper roller moving in the arc of a circle the

axis of which is coincident with the axis of vibration of the frame, the said arc for the intended purpose being equivalent to a line tangent to the periphery of the lower roller. In front of the upper roller there is a metallic plate, *j*, called the "guard" or "discharge" plate. This plate is beaded or swelled, as at *k*, with the edge of the beaded or swelled part slightly notched, if desired. This plate is so secured to the frame that the edge nearly touches the periphery of the lower roller, and about three-sixteenths of an inch from the periphery of the small or upper roller when thrown back. There is an open space, *l*, between the edge of the table and the plate *j* for the free passage of the seed when discharged. A brush, *m*, as long as the rollers, is attached by arms *n n* to the upper bar of the swinging frame, and its face is so placed that when the frame is thrown back it is in contact with the periphery of both rollers.

When the machine is put in operation, the swinging frame is thrown or pushed back, so that the two rollers will be in contact, and the upper one turned by the lower one. The attendant presents and spreads the pods of cotton along the whole length of the rollers over the guard or discharge plate, so that the rollers shall catch, and by their bite draw the fibers through and strip them from the seeds, which are held back by the surface of the guard-plate and upper roller. The fibers that adhere to the surface of the rollers are rubbed off by the brush and partially rolled up in the space between the peripheries of the two rollers and the surface of the brush, and when the fibers have been stripped from the seeds the swinging frame is drawn forward, and with it the small roller and brush, which are both thereby lifted from the surface of the lower roller. This operation liberates such of the remaining fibers as were previously held in the bite of the two rollers and still adhering to the seeds, and the upper roller pushes all the seeds, with the few short remaining fibers adhering to them, over the swell or curved part of the guard-plate, the edge of which separates or frees the remaining fibers from the surface of the lower roller, and, being thus liberated, the seeds fall down over the surface of the discharge-plate. At the same time the brush rises from the surface of the lower roller, leaving sufficient space for the escape of the separated fibers. The swinging frame

is then pushed or thrown back, preparatory to a fresh supply of pods. If desired, the guard or discharge plate can be made to vibrate longitudinally by being mounted in suitable slides and receiving the required motion by any of the known mechanical movements for imparting such motions; and so with the swinging frame, instead of moving it by hand, when required to discharge the stripped seeds, it may be imparted automatically by a cam receiving a slow rotary motion from the main shaft and acting on an arm of the said frame, or by other equivalent means; and the lower roller, instead of being covered with leather or india-rubber, may be covered with other equivalent substances, or it may be made of wood, or, if desired, it may be of metal, although I prefer a roller covered with leather or vulcanized india-rubber.

Instead of supplying the pods of cotton to the rollers by hand, they may be supplied by a hopper or other suitable means, as this constitutes no part of my invention.

It will be obvious that the first part of my invention, relating to the separating motion of the rollers, may be applied without the other parts of my invention, although the best results will be produced when all the parts of my said invention are used in connection; and it will also be obvious that instead of giving the separating motion by moving one of the rollers the two may be moved, and that in either case this separating motion may be in a tangential line instead of the arc of a circle approximating to a tangent.

What I claim as my invention is—

1. Giving to one or both of the rollers of a roller-gin the separating motion, substantially such as herein described, to separate the rollers for discharging the seed after the fibers have been separated, as set forth.

2. The guard and discharge plate, substantially such as described, in combination with the two rollers of a roller-gin having the separating motion, substantially as described, and for the purpose set forth.

3. The clearing and collecting brush, arranged substantially as described, in combination with the ginning-rollers, substantially as and for the purpose set forth.

LEWIS S. CHICHESTER.

Witnesses:

WM. H. BISHOP,
CHAS. A. WILSON.