

Nov. 18, 1924.

1,516,101

J. JOLLY

COMBING MACHINE

Filed Sept. 26, 1922

4 Sheets-Sheet 1

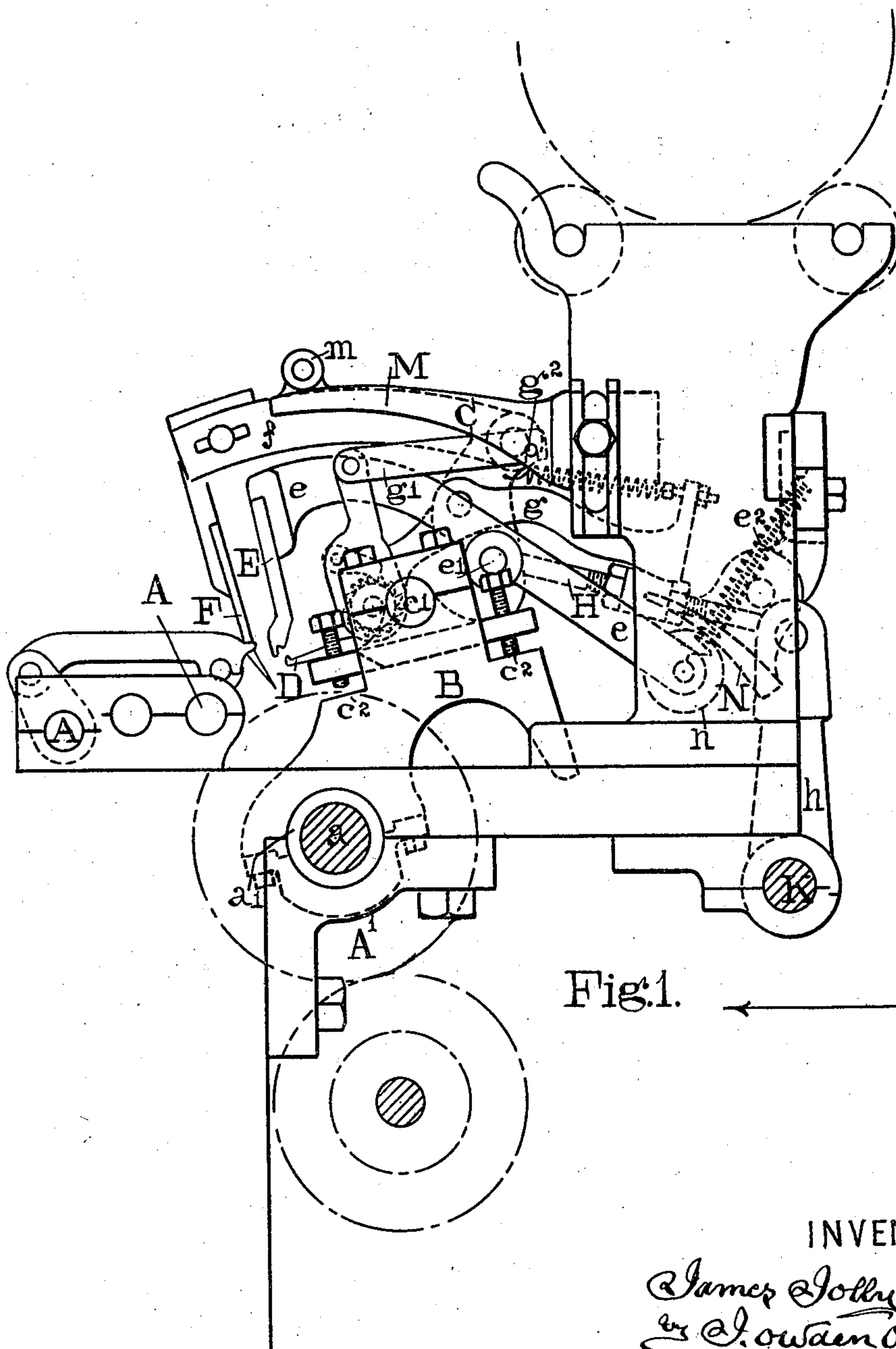


Fig.1.

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Nov. 18, 1924.

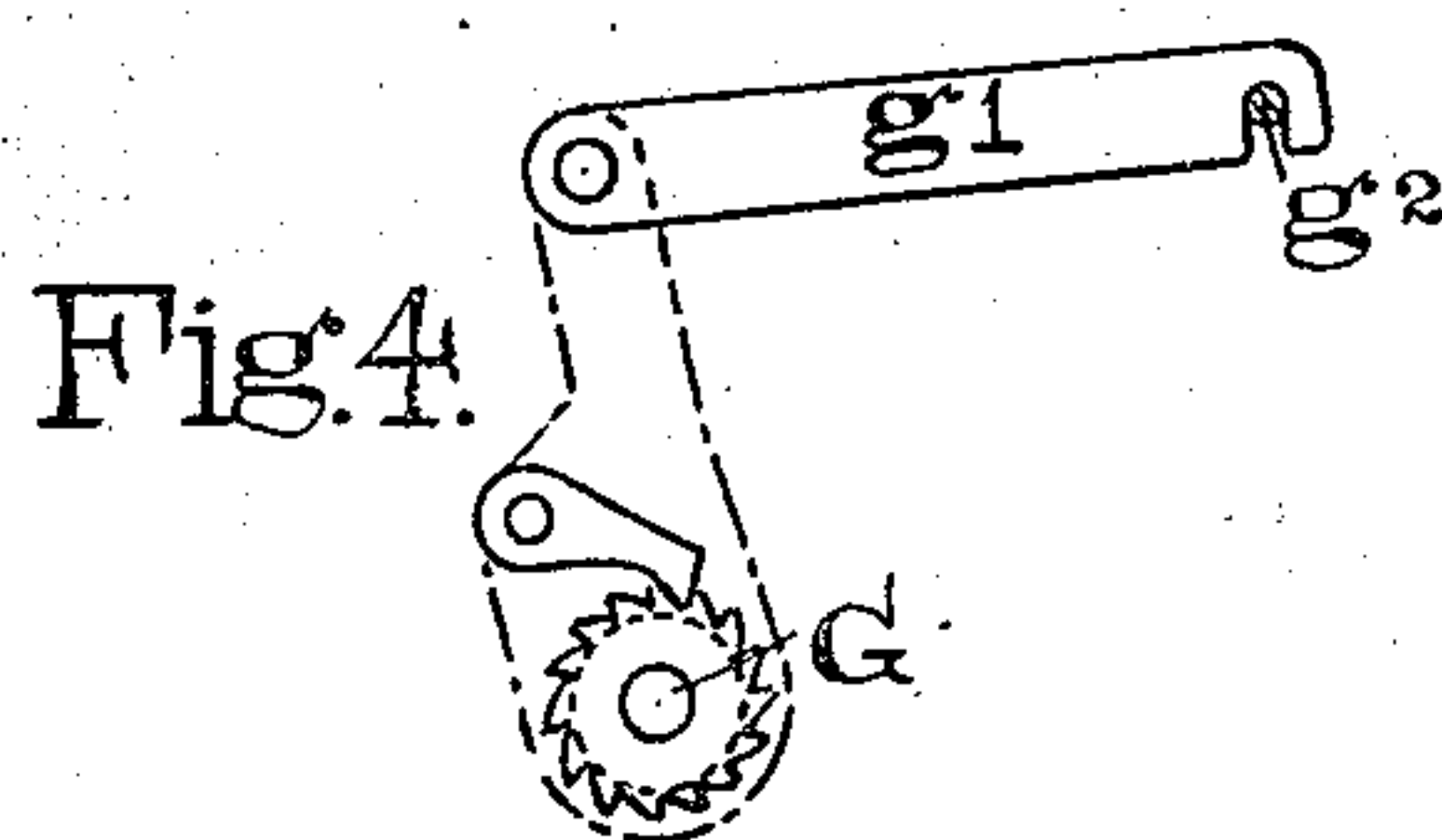
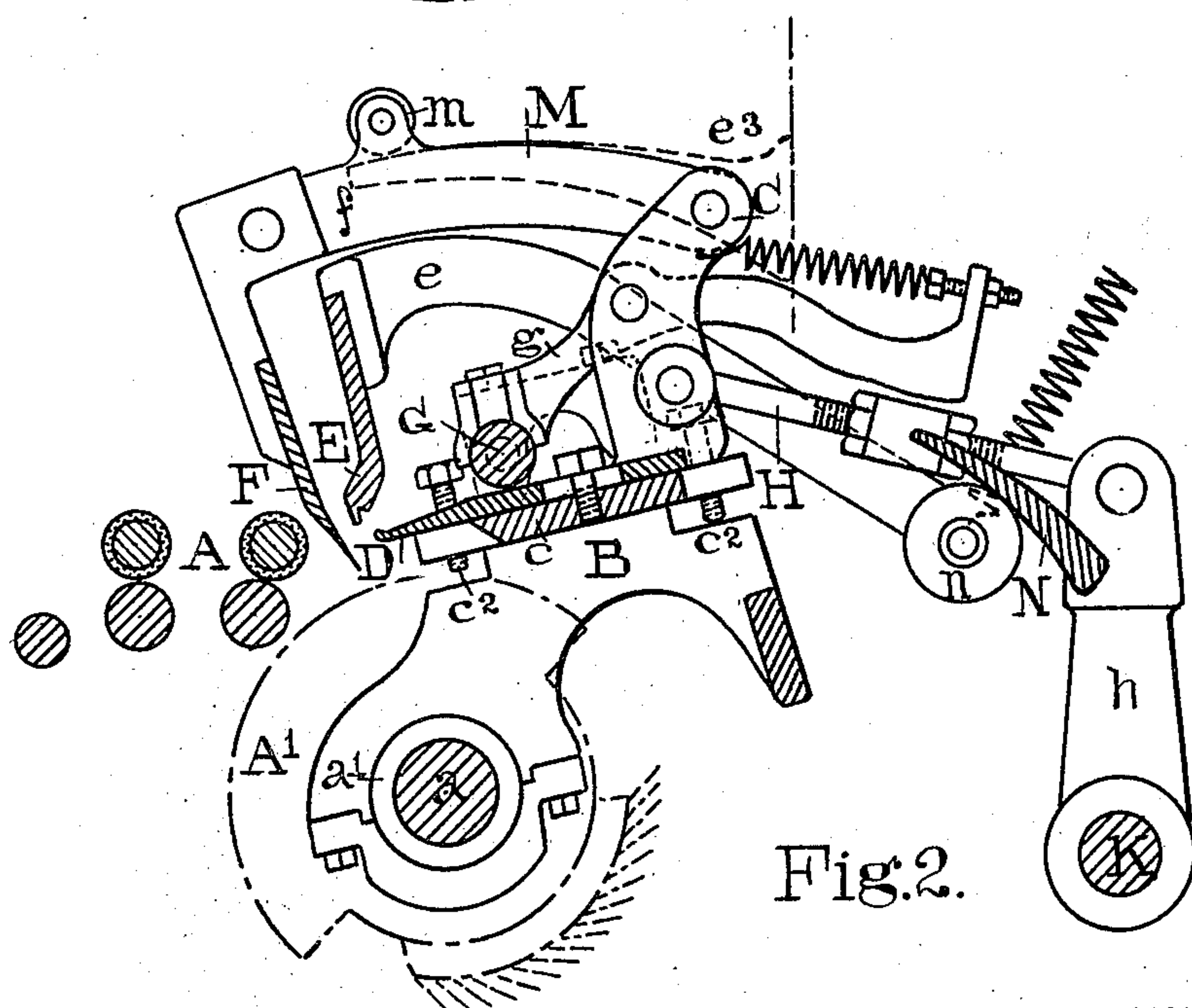
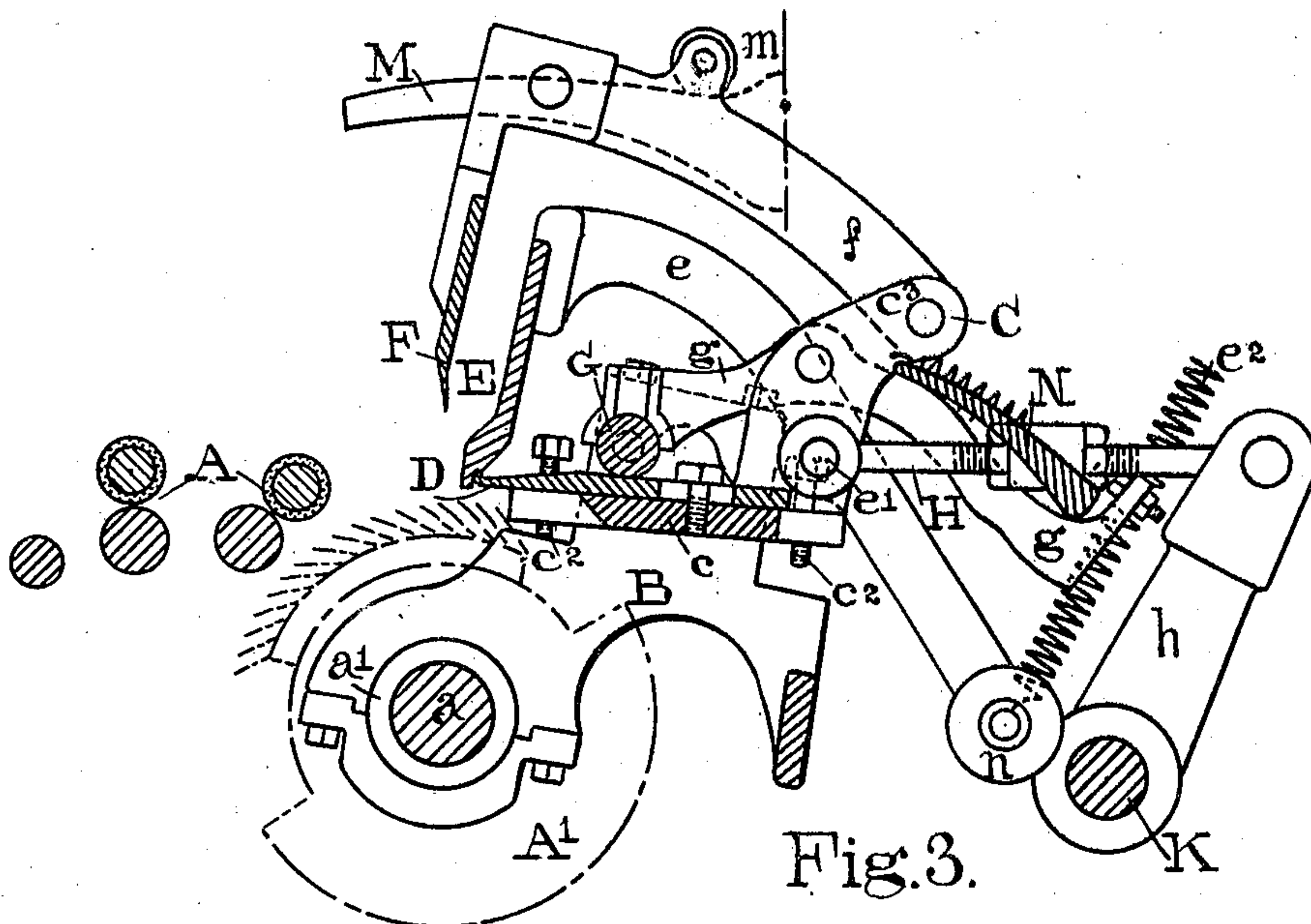
1,516,101

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COMBING MACHINE

Filed Sept. 26, 1922

4 Sheets-Sheet 2



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1,516,101

COMBING MACHINE

Filed Sept. 26, 1922

4 Sheets-Sheet 3

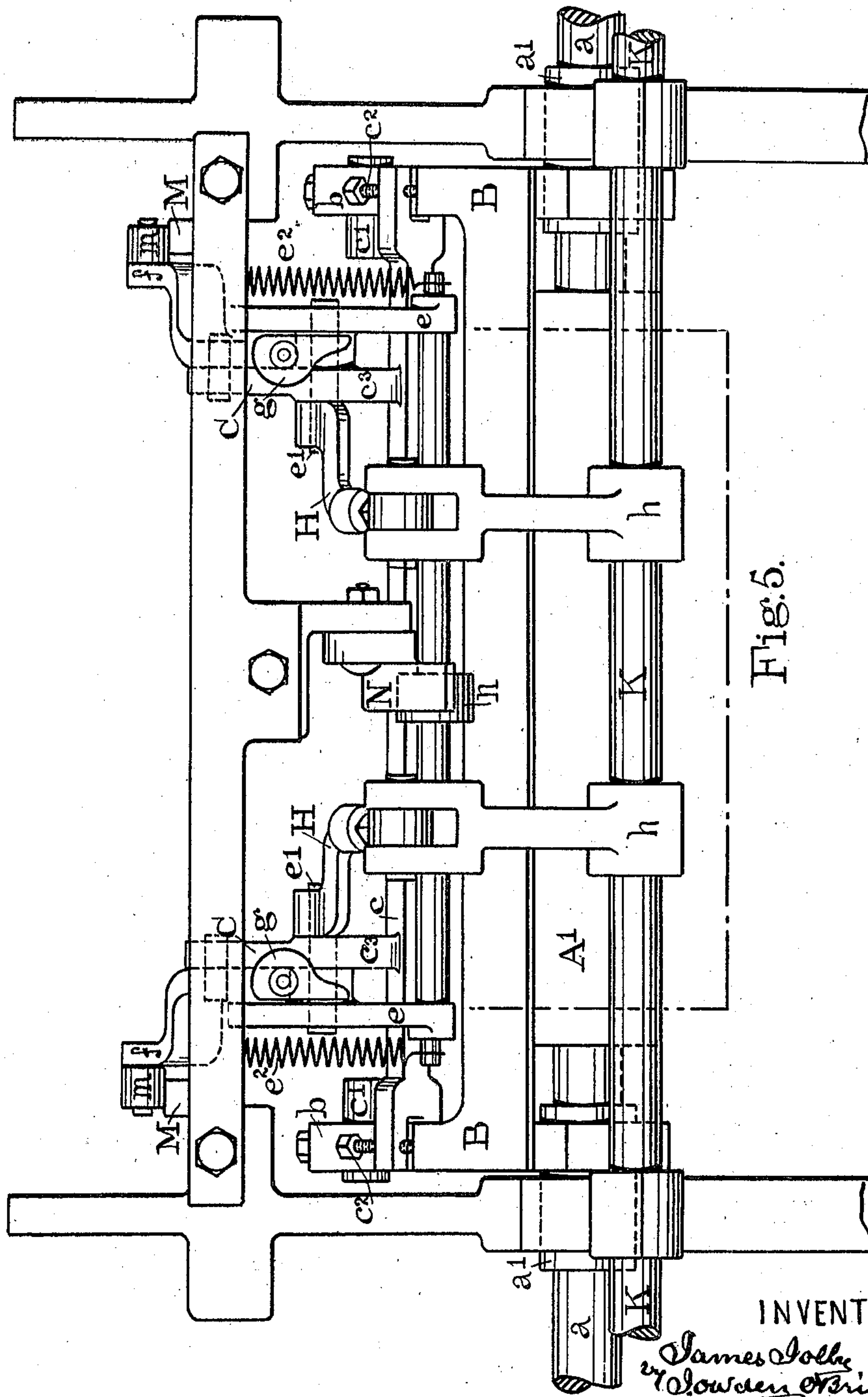


Fig. 5.

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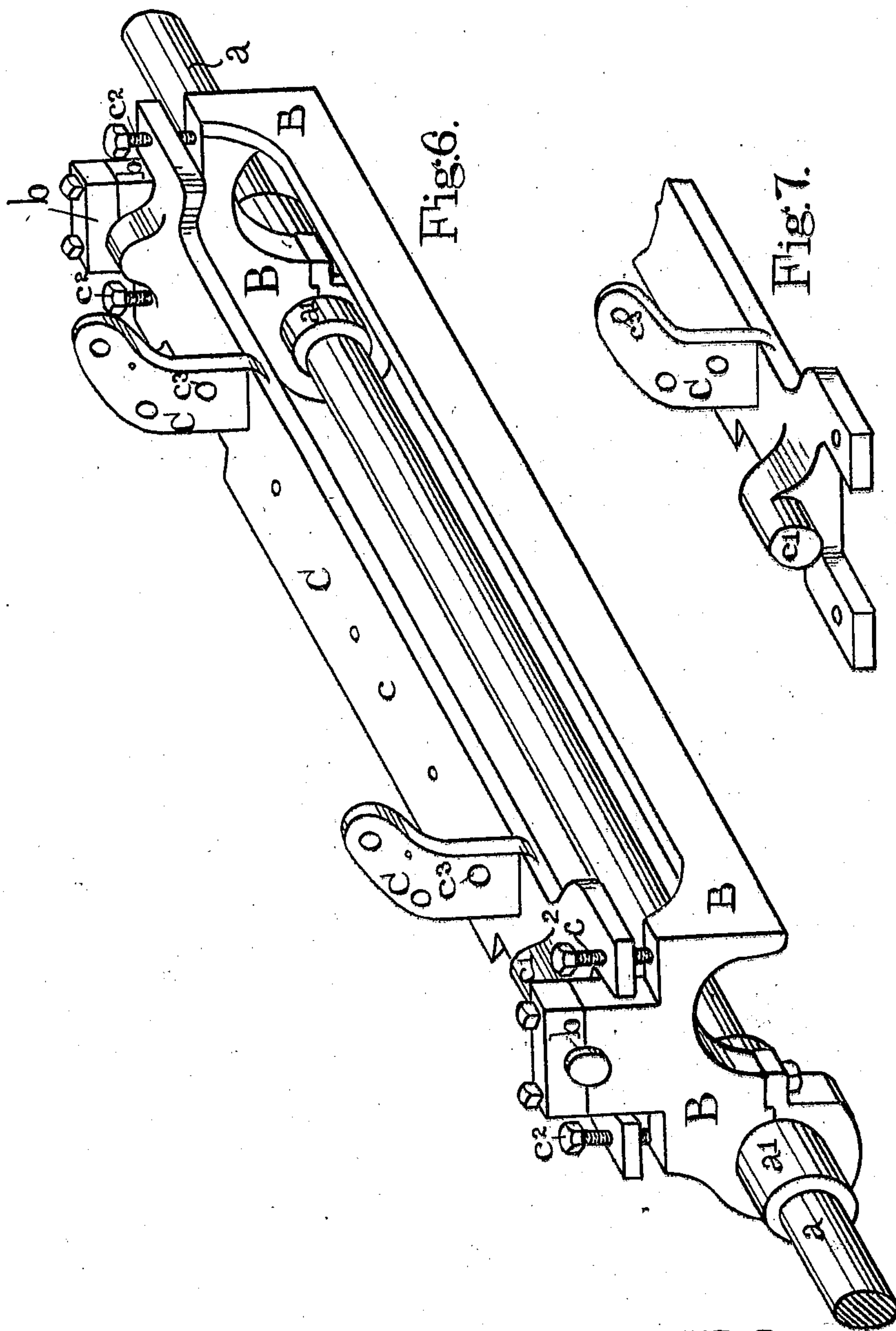
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COMBING MACHINE

Filed Sept. 26, 1922

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

JAMES JOLLY, OF BOLTON, ENGLAND, ASSIGNOR TO WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

COMBING MACHINE.

Application filed September 26, 1922. Serial No. 590,719.

To all whom it may concern:

Be it known that I, JAMES JOLLY, a British subject, residing at Deane, Bolton, county of Lancaster, England, have invented certain new and useful Improvements in Combing Machines, of which the following is a specification.

This invention relates to combing machines of the Heilmann-Nasmith type in which an oscillating movement is imparted to the nippers and top combs to cause them to approach to and recede from the detaching rollers.

In the Nasmith comber, the nipper, the feed roller and the top comb are all mounted in a single oscillating frame. The centre about which it oscillates is below the cylinder, the movements of the several parts being obtained by connections to fixed parts. In this construction the nipper oscillates in a path eccentric to the cylinder and is further away from the needles of the cylinder at the commencement of the oscillation than at the finish and consequently the cotton held by the nipper is not equally combed by all the rows of needles of the cylinder.

The object of this invention is to maintain the nippers when closed as they move or rock to and fro, a constant distance from the needles of the cylinder and to get the cotton held by the nippers down to the path of the needles of the cylinder in advance of each revolution.

According to the invention the nipper frame is carried on a bearing frame oscillating about the axis of the cylinder and in a path concentric with the cylinder.

The invention will be fully described with reference to the accompanying drawings in which a comber head embodying the invention is illustrated.

Fig. 1 is an end elevation showing the nipper in its advanced position towards the detaching rollers, the nipper jaw raised and the top comb down.

Fig. 2 is a transverse section showing the parts in the same position as Fig. 1.

Fig. 3 is a transverse section showing the parts in position during combing operation furthest from the detaching rollers.

Fig. 4 is a detail of the feed roller ratchet.

Fig. 5 is an elevation looking from back in direction of arrow Fig. 1.

Fig. 6 is a perspective view of the bearing

frame B and the nipper frame C with the other parts removed.

Fig. 7 is a perspective view of one end of the nipper frame C.

The detaching rollers A are mounted to operate in the ordinary way and the cylinder A' is of ordinary or known construction mounted on a shaft *a* carried in bearings *a'* on the standard or frame of the machine.

An oscillating bearing frame B is mounted on the bearings *a'* concentric with the cylinder shaft *a* and is free to oscillate around the cylinder shaft *a*. The bearing frame B is provided with bearings *b* at both ends to support and carry the nipper frame C.

The nipper frame C is constructed with a longitudinal plate *c* with short upstanding portions formed with a pivot *c'* at each end by which it is mounted in the bearings *b* of the bearing frame B in which it is capable of rocking for a limited distance to allow the nipper when closed to oscillate at a constant distance from the needles. For the purpose of adjusting the position of the nipper frame C in relation to the bearing frame in either direction set screws *c''* are screwed into lugs or projections thereon, the back screw to adjust the height of the cushion plate D relative to the steel detaching roller A and the front screw to adjust the descent of the nipper knife and plate D to the desired distance from the cylinder needles. It is provided at both ends with upwardly projecting lugs or cheeks *c'''* to carry the top nipper jaw E, the top comb F and the feed roller G, all of the members being thus carried on the nipper frame C which is itself pivotally carried on bearing frame B.

The cushion plate D forming the bottom jaw of the nipper may be formed by the longitudinal plate *c* of the nipper frame or preferably as a separate plate which is adjustably affixed thereto by screws or bolts.

The nipper arms *e* carrying the top nipper jaw or knife E are pivoted to the cheeks *c'''* of the nipper frame by studs *e'* which project through holes in the cheeks at both sides and to the inner ends of these studs connecting rods H are pivoted which connect with arms or levers *h* on the rocking shaft K. The studs *e'* are substantially the same distance from the plane of plate *c* as the pivots *c'*.

The arms *e* of the nipper jaw or knife extend rearwards beyond the nipper frame and are attached to springs *e*² which are anchored to a fixed part of the frame.

5 The arms *f* carrying the top comb *F* are pivoted to the upper end of the lugs or cheeks *c*³ of the nipple frame *C* and the feed roller arms *g* are also pivoted on adjustable studs carried by the lugs or cheeks *c*³ the feed roller
10 being rotated intermittently by a ratchet and pawl as the nipper frame *C* and nipper is moved forward. The rearward enlarged ends of the feed roll arms are connected by adjustable springs to the upper parts of the
15 cheeks *c*³, so that the feed roll is thereby spring-pressed against the cushion plate *D*.

A stationary cam or inclined surface *M* is adjustably secured to the machine frame adjacent each top comb arm *f* to support the
20 bowls *m* on said arms and thereby control and operate the top comb, giving the desired lift and fall in the familiar manner. Similarly a stationary cam *N*, adjustably supported on a fixed cross-bar of the machine at
25 about the center of the combing head, is engaged by the bowl *n* centrally journaled on the cross-rod which connects the two nipper arms *e*. This cam causes the nipper knife *E* to open at the desired time as will be under-
30 stood.

The whole mechanism receives its oscillating or rocking movement from a rocking shaft *K* (operated by cams not shown) through the arms or levers *h* and connecting
35 rods *H* pivoted to the nipper frame *C* on the studs *e*'.

In operation as the bearing frame *B* oscillates and moves forward towards the detaching rollers *A* it carries with it the nippers
40 *D*, *E*, the top comb *F* and the feed roller *G*. Towards the end of the forward movement the runner *n* contacts with the fixed cam plate *N* and causes the top nipper jaw to move away from the cushion plate allowing the cushion plate to rise oscillating on the
45 bearing *c*' to the extent permitted by the rear set screw *c*², and at the same time opening the nippers and releasing the fibre therefrom. The runners *m* of the top comb *F* traverse
50 along the incline or cam plate *M* and allow the top comb to fall into position and the ratchet of the feed roller *G* is advanced as the arm *g*' is held by the pin *g*². As the bearing frame *B* oscillates and moves away from
55 the detaching rollers *A*, the nipper *E* and top comb move back with it, the runner *n* on the nipper arm leaves the cam plate *N* and the spring causes the top nipper jaw to close on the cushion plate and hold the cotton and at the same time forces the nipper
60 downwards closer to the needles of the cylinder to the position determined by the front set screw *c*² and the runners *m* of the top comb *F* traverse the incline cam plate *M* and
65 lift the top comb *F*.

What I claim as my invention and desire to protect by Letters Patent is:—

1. In a comber an oscillating frame or bracket carrying the nipper, top comb and feed roller, pivoted concentrically with the
70 cylinder shaft and oscillating around the axis of the cylinder at a constant distance from the cylinder.

2. In a comber the combination with an oscillating frame or bracket oscillating
75 around the axis of the cylinder of an adjustable nipper frame pivoted therein and capable of independent oscillation to bring the nipper nearer to and further from the cylinder needles as it moves to and from the de-
80 taching rollers.

3. In a comber the combination with the detaching rollers the cylinder and the cylinder shaft, of an oscillating bearing frame pivoted concentrically with the cylinder shaft
85 to oscillate around it, an adjustable nipper frame provided with pivots at both ends and pivoted within the bearing frame, lugs at both ends of the nipper frame, top nipper jaw, top comb and feed roller pivoted to the
90 said lugs all of which rock to and from the detaching rollers with the bearing frame around the axis of the cylinder and stationary cam plates to control the movement of the nipper jaw and top comb substantially
95 as described.

4. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame
100 pivotally mounted in the bearing frame and carrying the nipper knife, feed mechanism and top comb, and operating means for coincidentally oscillating both frames on their respective axes.

5. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame
105 pivotally mounted in the bearing frame and carrying the nipper knife, feed mechanism and top comb, and operating means connected to one of said frames and acting to oscillate both frames on their respective axes.

6. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, a nipper frame
110 pivotally mounted in the bearing frame and means applied to the nipper frame for causing both frames to move toward and from the detaching rolls and the nipper frame to move toward and from the comb cylinder.
120

7. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame
115 mounted to oscillate in the bearing frame, and carrying the nipper knife and feed mechanism, means for adjustably limiting the extent of oscillation of the nipper frame relatively to the bearing frame, and means for oscillating both frames on their respec-
125 tive axes.
130

8. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame mounted to oscillate in the bearing frame, independent means for determining the extent of such oscillation in each direction, and means for oscillating both frames on their respective axes.

9. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, a nipper frame comprising a longitudinal plate with upstanding terminal portions provided with pivots mounted in the bearing frame on an axis above the comb cylinder and connecting rod mechanism adapted for oscillating both frames on their respective axes, said mechanism being pivotally connected to said nipper frame in rear of and at substantially the same distance from the plane of said longitudinal plate as said pivots.

10. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame pivotally mounted in the bearing frame and carrying a pair of nipper arms, means connecting said arms, and an operating connection between said means and a fixed part of the machine adapted to cause the operation of the nipper mechanism by the oscillating motion of the frames.

11. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, a nipper frame pivotally mounted in the bearing frame and provided with cheeks at the ends thereof, nipper arms and feed roll arms both carried by said cheeks and means whereby the oscillation of the bearing frame causes movement of said nipper and feed roll arms relatively thereto.

12. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, a nipper frame mounted to oscillate in the bearing frame on an axis above the comb cylinder, operating connections for causing both frames to oscillate on their respective axes and a top comb, nipper knife and feed roll all carried by said nipper frame.

13. In a comber, the combination of a bearing frame journaled to swing concen-

trically with the comb cylinder, a nipper frame pivotally mounted in the bearing frame, a nipper arm journaled in the nipper frame, a feed roll arm also journaled therein and means for oscillating both frames connected to the journal means of one of said arms.

14. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, an oscillating nipper frame journaled in the bearing frame and means in the forward side of the nipper frame for adjusting the extent of oscillation thereof.

15. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, an oscillating nipper frame journaled in the bearing frame and means accessible from the upper side of the nipper frame for variably limiting the extent of its oscillation on the bearing frame.

16. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder, an oscillating nipper frame pivoted in the bearing frame, means applied to the nipper frame for causing both frames to move toward and from the detaching rolls and the nipper frame to move toward and from the comb cylinder, and means related to fixed parts of the machine so that such oscillation operates the several members carried by the nipper frame.

17. In a comber, the combination of a bearing frame journaled to swing concentrically with the comb cylinder shaft, a nipper frame pivotally mounted in the bearing frame and carrying nipper knife, feed mechanism and top comb, operating means for oscillating both frames on their respective axes, and connections to fixed parts of the machine for causing said knife, feed mechanism and top comb to function in sequence.

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

JAMES JOLLY.

Witnesses:

J. OWDEN O'BRIEN,
BRIAN O'BRIEN.