

(No Model.)

2 Sheets—Sheet 1.

A. HEINE.

FLOUR BOLT.

No. 310,134.

Patented Dec. 30, 1884.

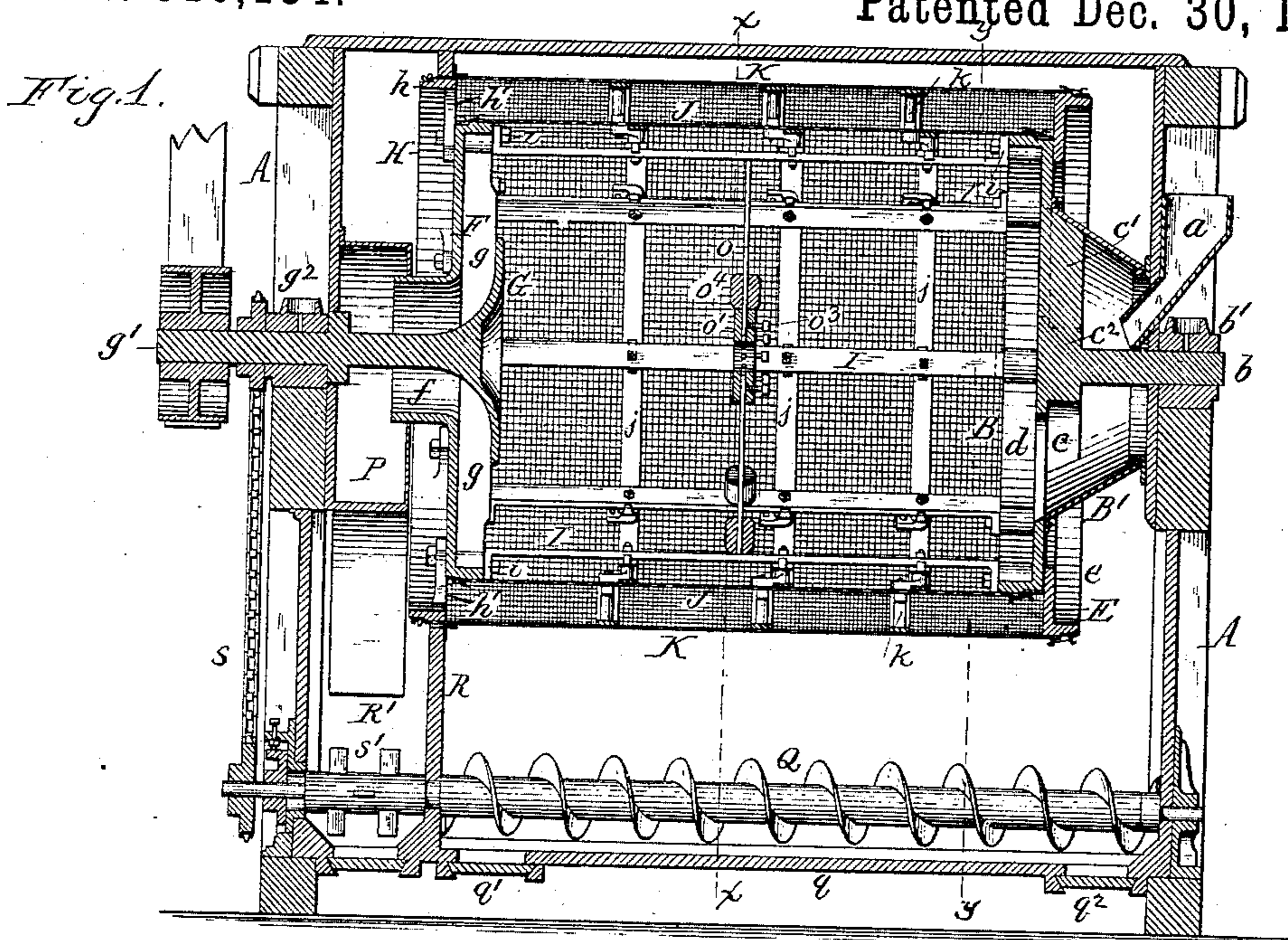


Fig. 2.

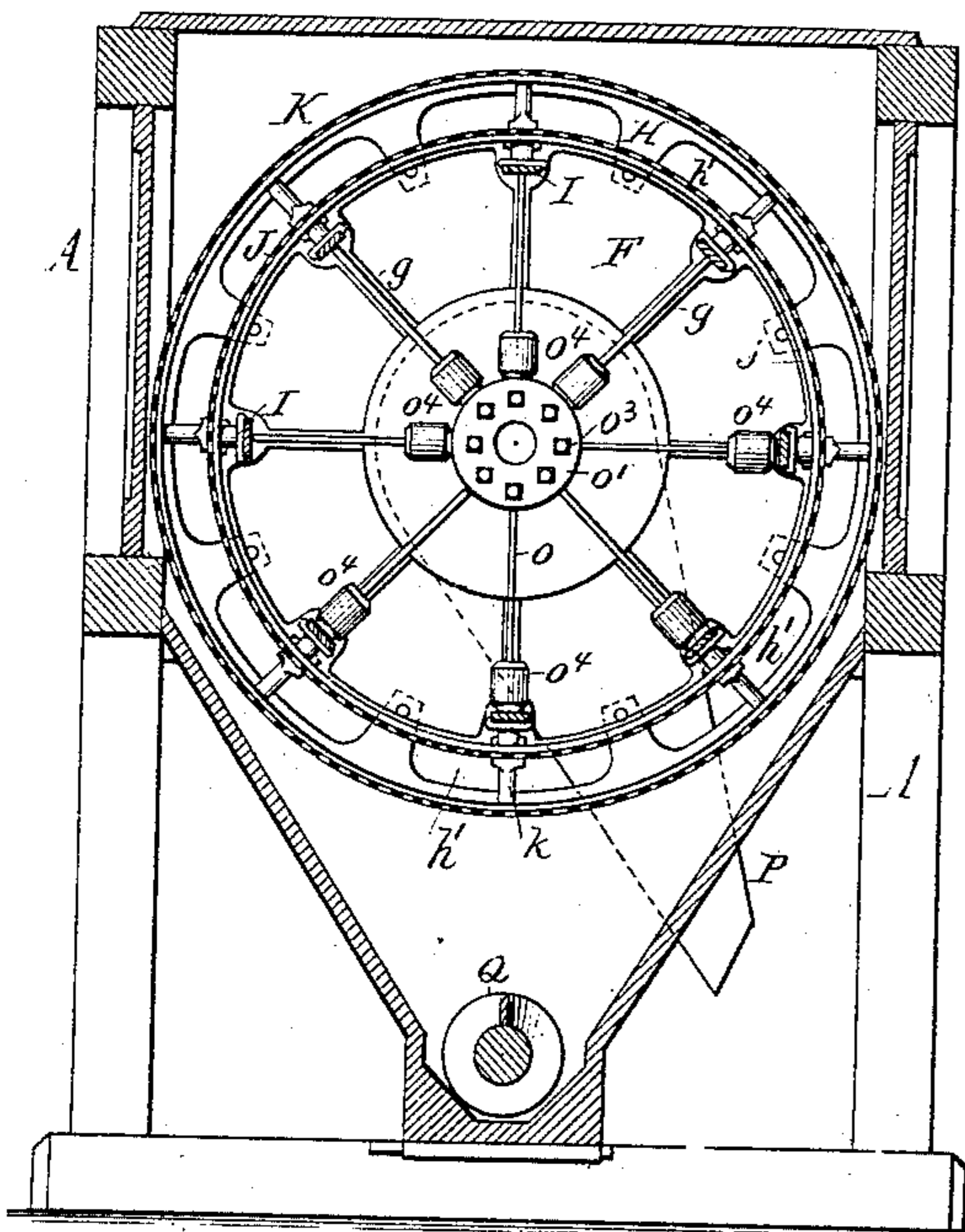
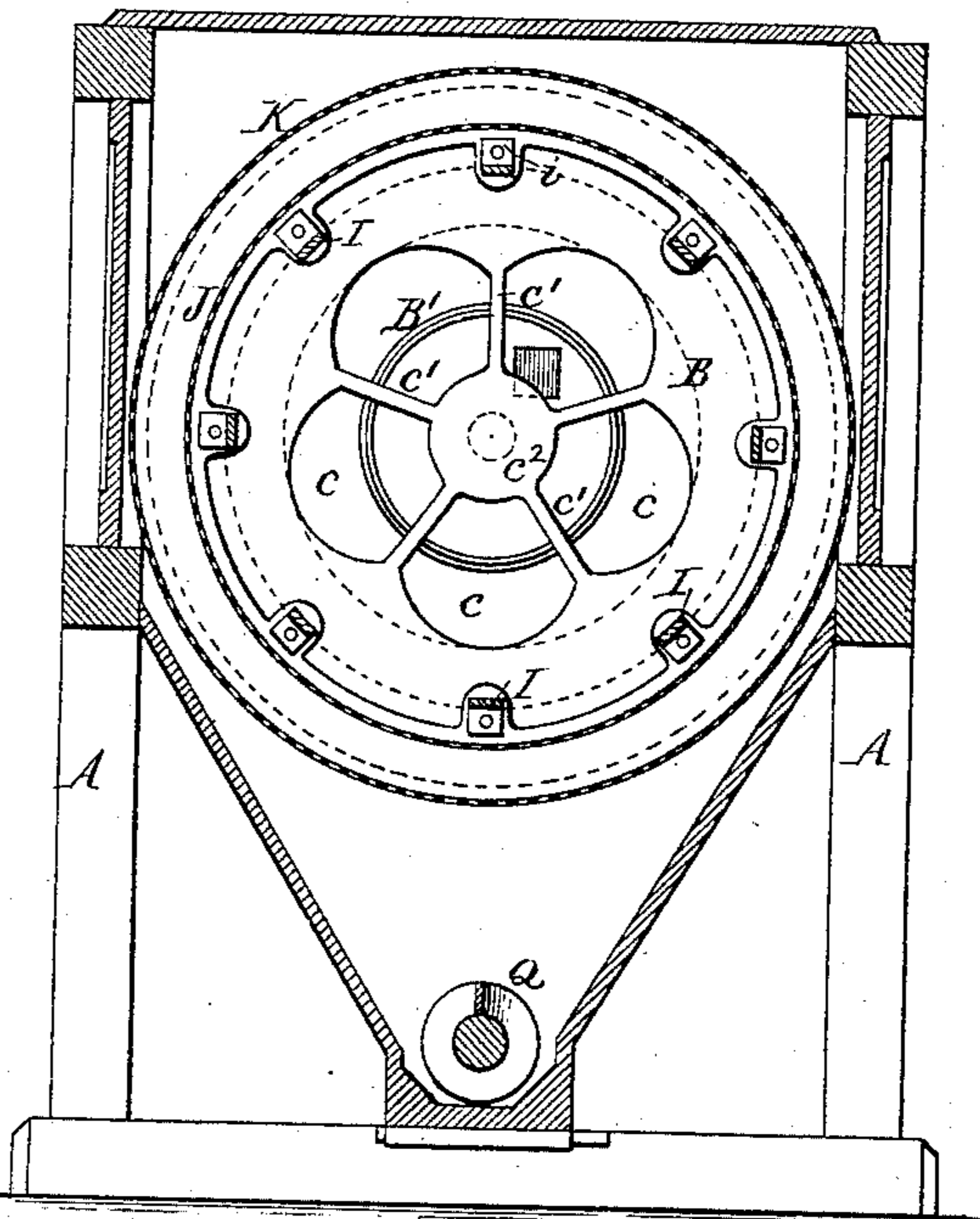


Fig. 3.



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2 Sheets—Sheet 2.

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Fig. 4.

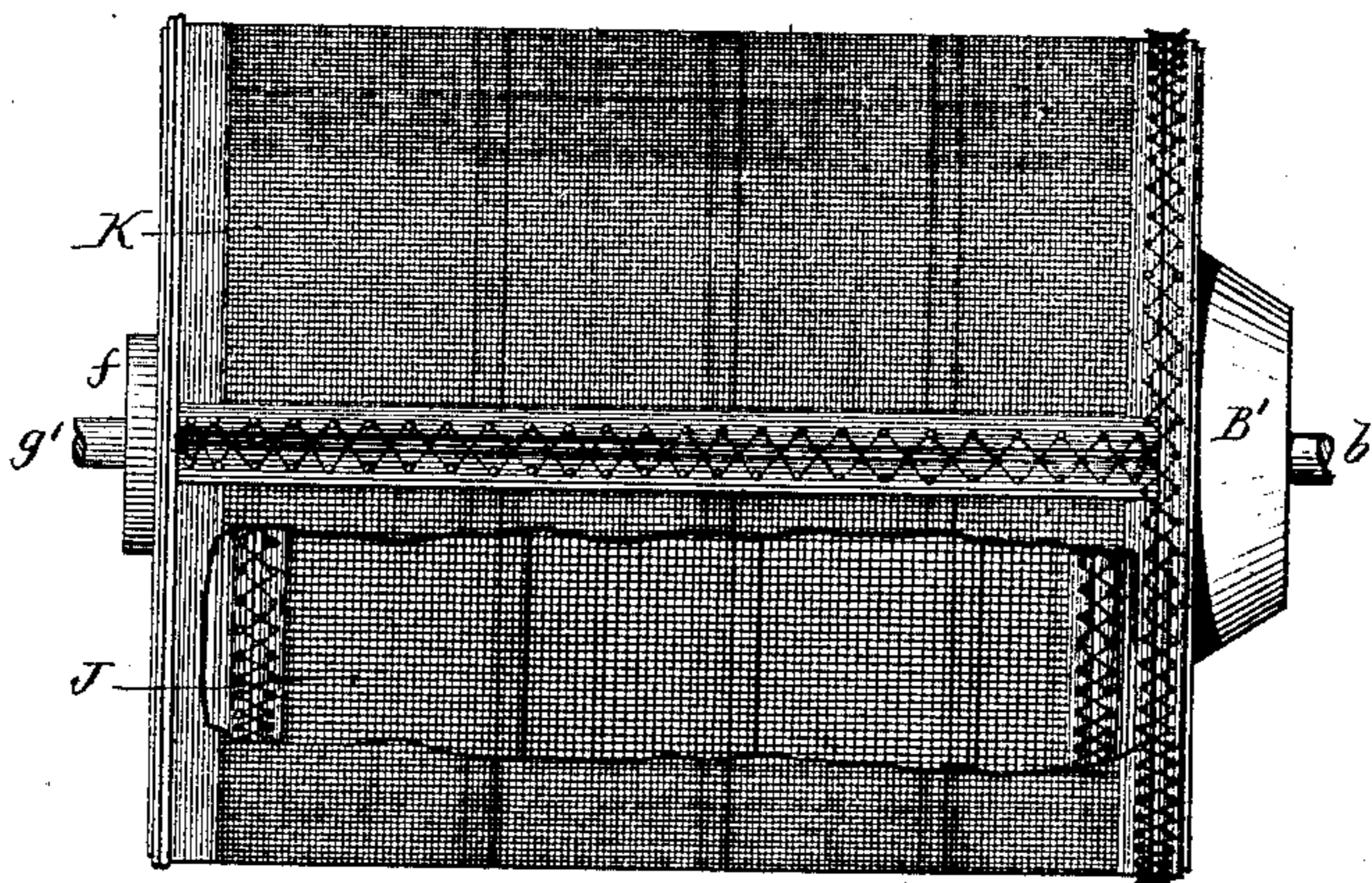


Fig. 5.

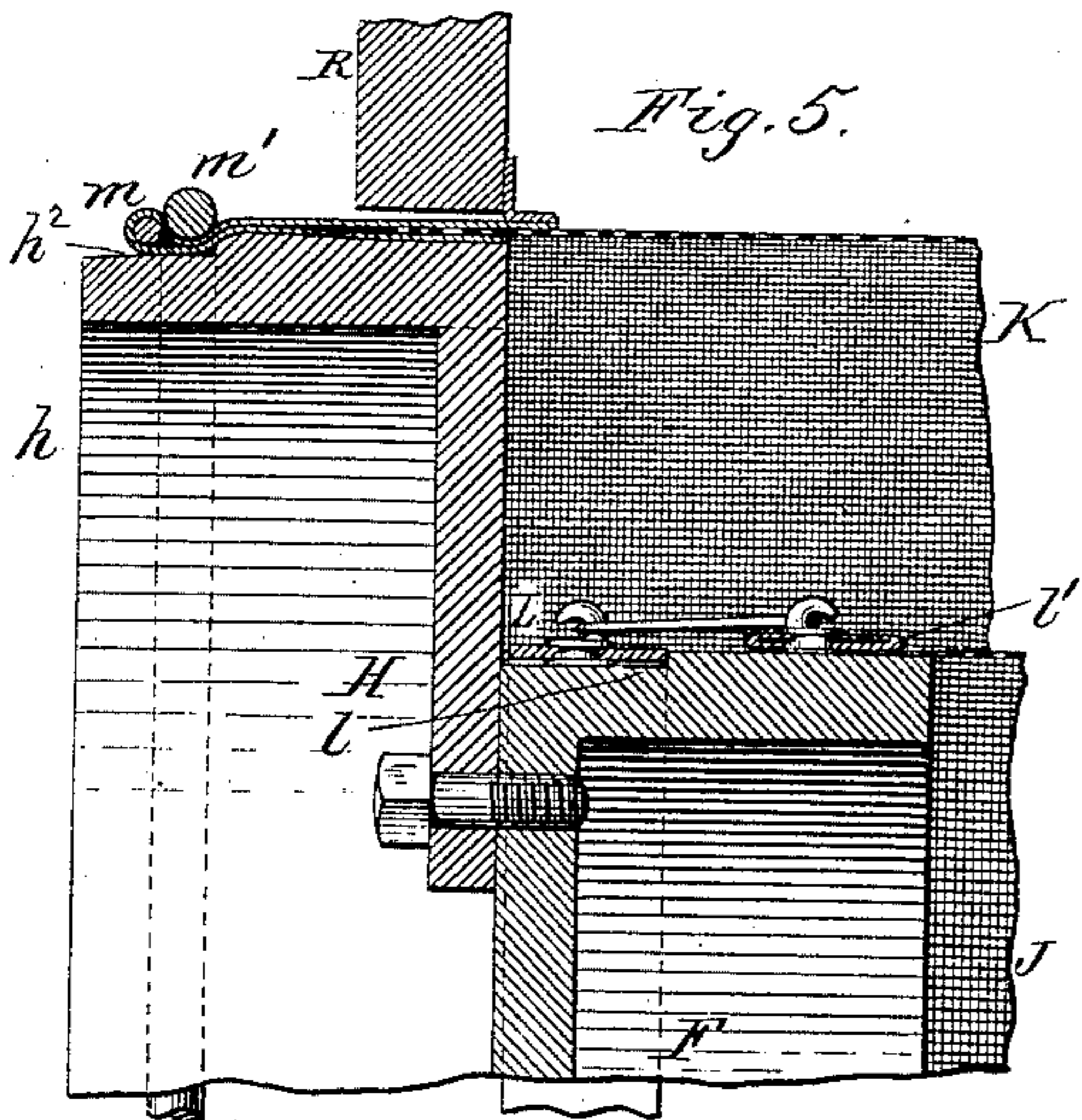


Fig. 6.

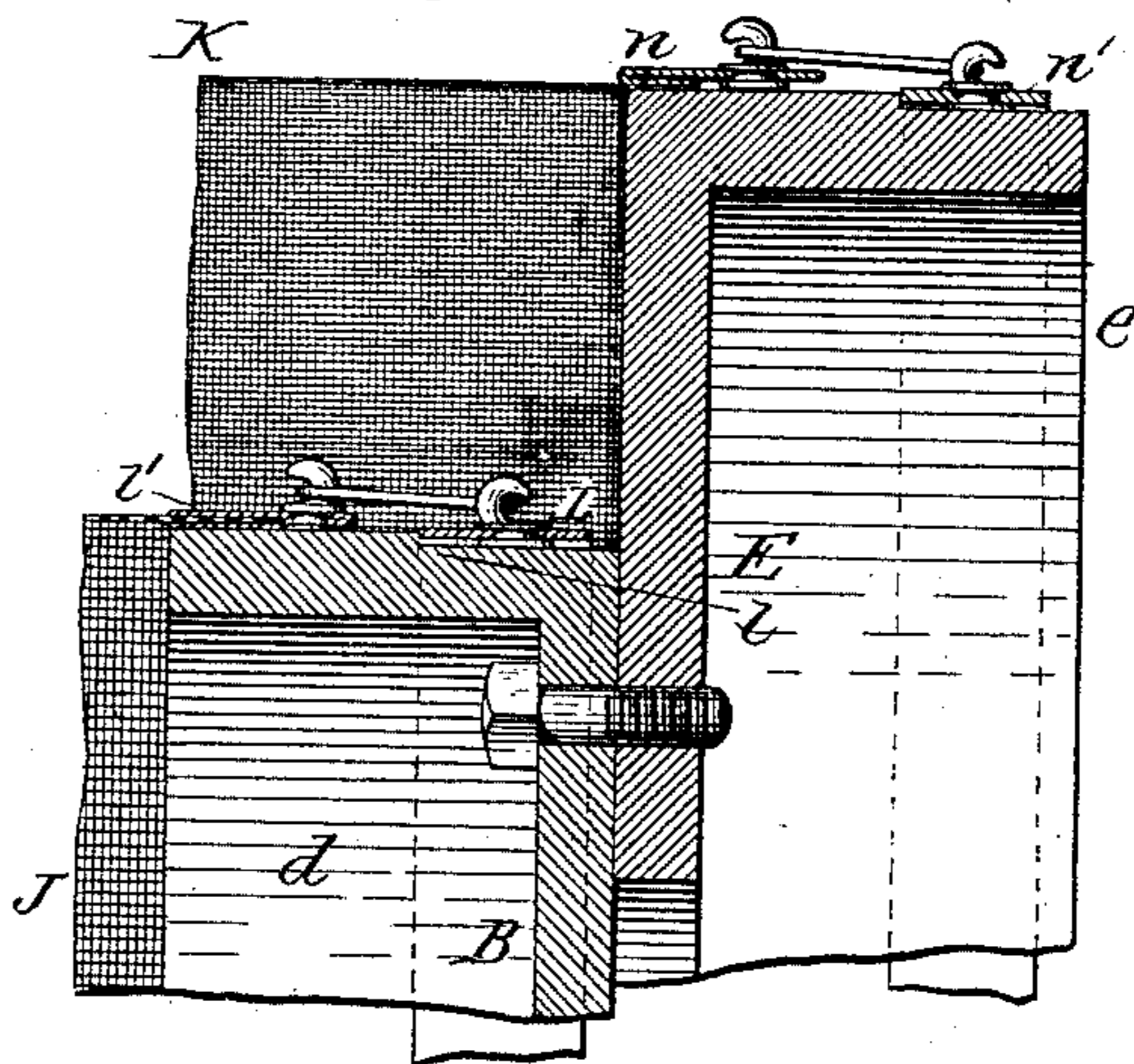


Fig. 7.

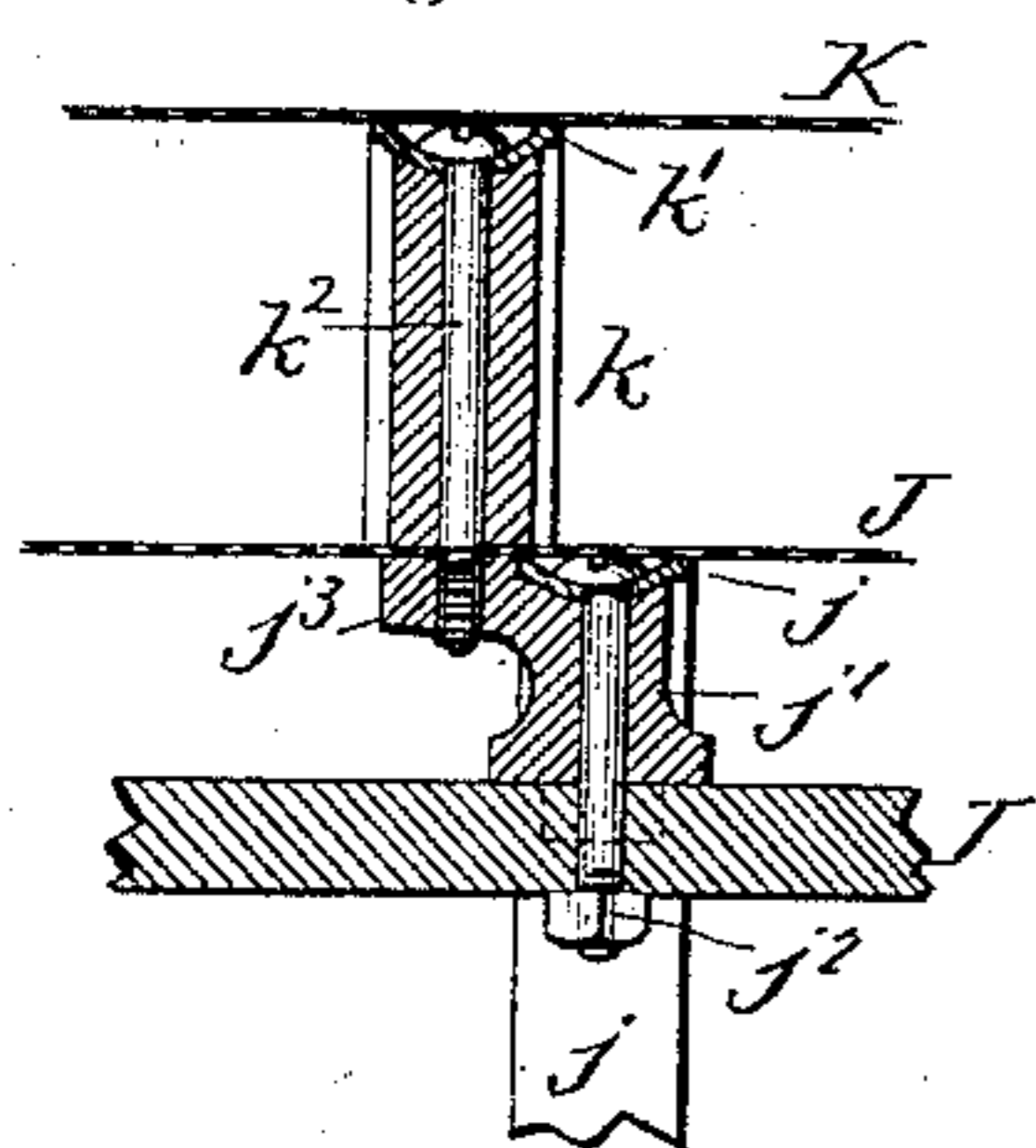


Fig. 8.

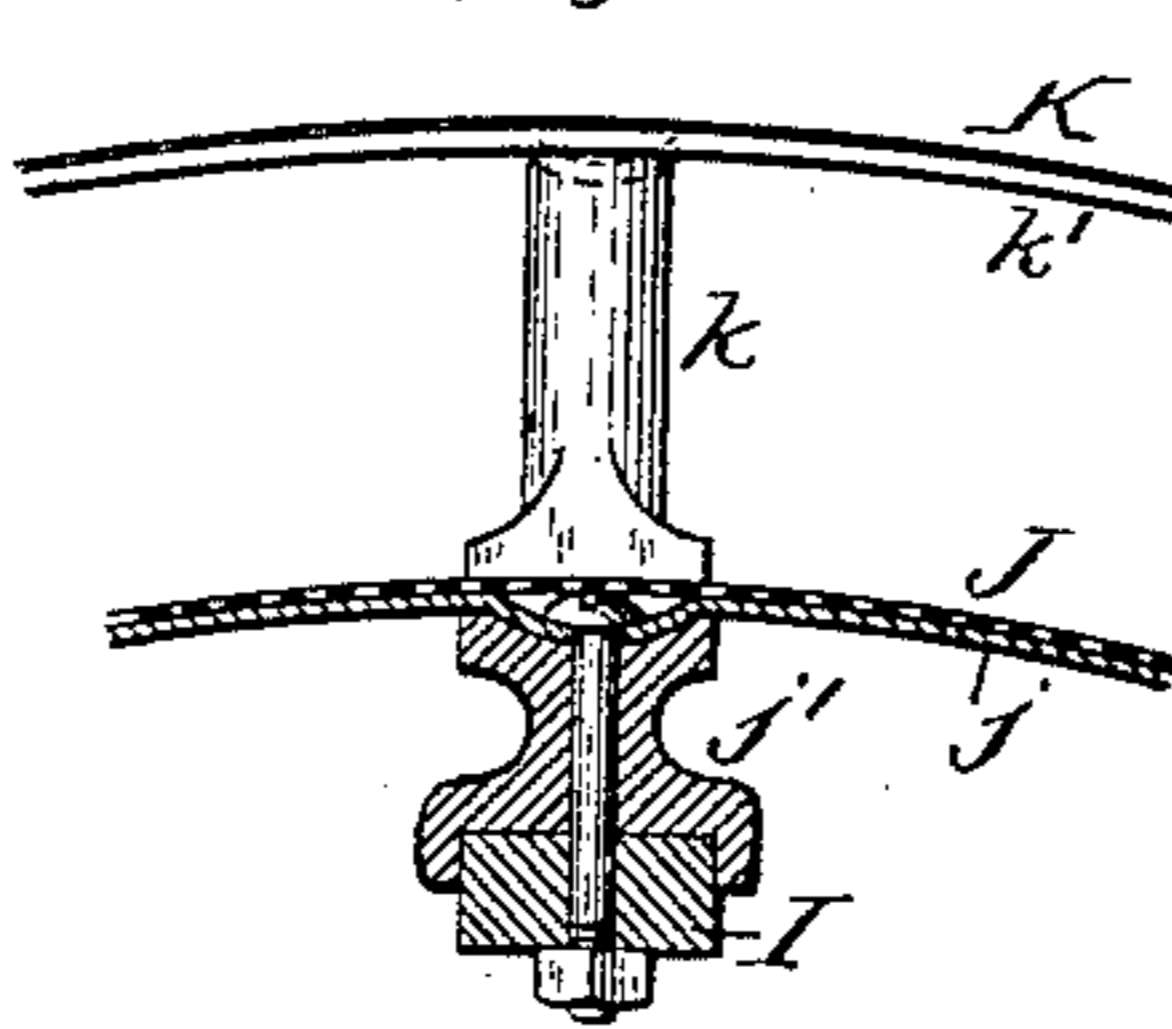
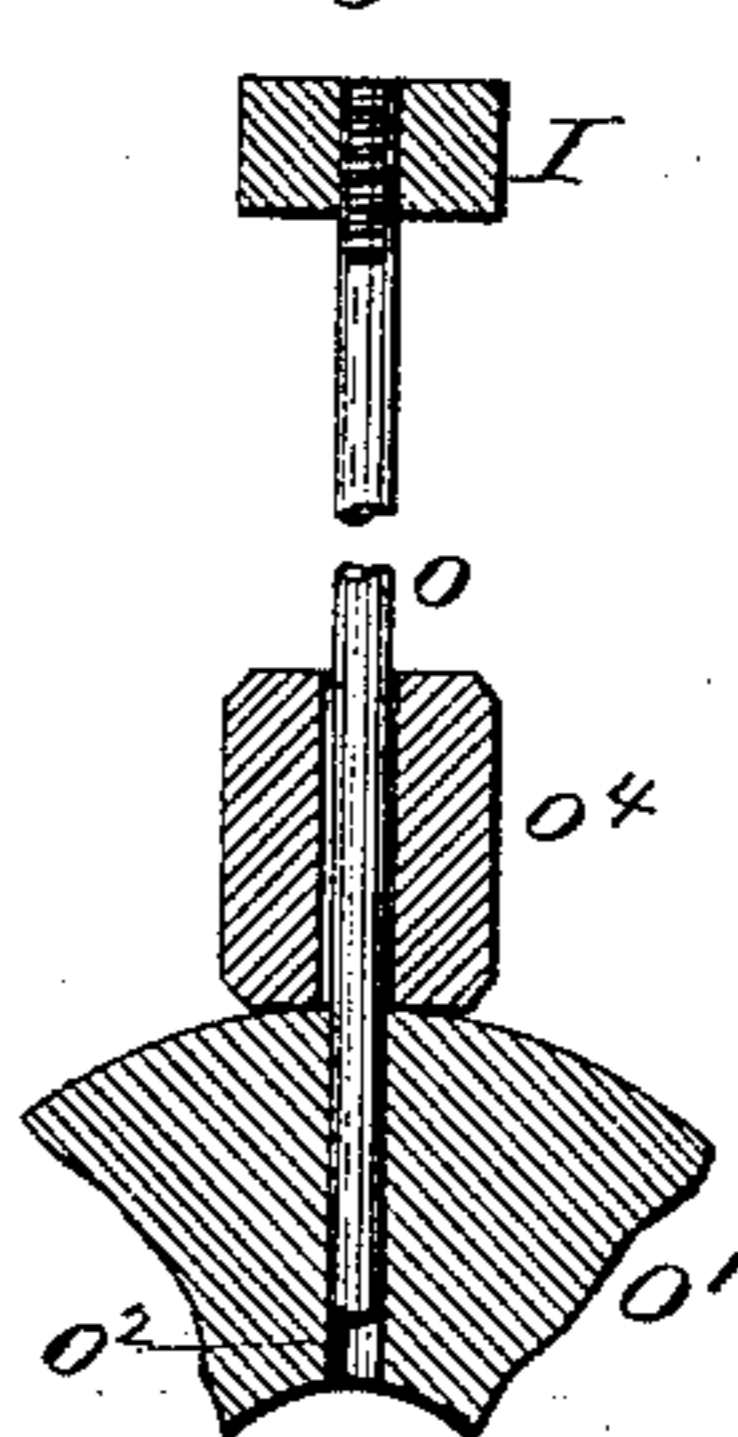


Fig. 9.



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# UNITED STATES PATENT OFFICE.

AUGUST HEINE, OF SILVER CREEK, NEW YORK.

## FLOUR-BOLT.

SPECIFICATION forming part of Letters Patent No. 310,134, dated December 30, 1884.

Application filed July 5, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST HEINE, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Flour-Bolts, of which the following is a specification.

This invention relates to certain improvements in bolting-reels, and has for its object to improve the construction of the reel, to increase its bolting capacity and improve its operation, and provide efficient means for keeping the meshes of the bolting-cloth clear.

My invention consists, to these ends, of the improvements in the construction of the machine, which will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal sectional elevation of a bolting-reel provided with my improvements. Figs. 2 and 3 are cross-sections in lines *xx* and *yy*, Fig. 1, respectively. Fig. 4 is a side elevation of the bolting-cylinder, with a portion of the outer cylinder broken away. Figs. 5 and 6 are sectional elevations, on an enlarged scale, of a portion of the heads of the bolting-cylinder. Fig. 7 is a longitudinal section, and Fig. 8 a cross-section, both on enlarged scales, of the supports to which the bolting-cloth is attached; and Fig. 9 is a sectional elevation, on an enlarged scale, of the cloth-cleaning device.

Like letters of reference refer to like parts in the several figures.

A represents the stationary frame of the machine, provided with a suitable casing which incloses the reel.

*a* represents the feed-spout at the head of the machine.

B represents the head of the reel, located at the feed end thereof, and provided with a central journal, *b*, which turns in a bearing, *b'*, secured to the main frame A.

B' represents a conical head or hollow conical shell secured to the outer side of the head B concentric with the journal *b*, and open at its outer end, into which the feed-spout projects, so as to deliver the material to be bolted upon the head B'.

*c* represents openings formed in the head B, for the passage of the material from the head into the interior of the reel. These openings are separated by ribs *c'*, whereby the outer

portion of the head is connected with a hub, *c'*, to which the journal *b* is attached.

*d* represents an inwardly or rearwardly projecting annular flange formed on the periphery of the head B.

E represents a ring of greater diameter than the head B, and secured to the front side thereof, so as to project beyond the periphery of the head B. The ring E is provided with a flange, *e*, which projects forwardly from the top of the ring.

F represents the head, located at the tail or discharge end of the reel, and provided with a central opening, *f*, through which the tailings are discharged.

G is a curved deflecting-plate arranged within the reel on the inner side of the head F, and *g* are elevating-ribs connecting the deflecting-plate G with the head F, and extending radially toward the periphery of the reel in a well-known manner, so as to elevate the tailings and discharge them through the central opening, *f*.

*g'* is a journal formed centrally on the deflecting-plate G, and turning in a bearing, *g''*, formed at the tail end of the machine.

H represents a ring secured to the rear side of the head F, and provided with a rearwardly-projecting flange, *h*. The ring H is similar in construction and arrangement to the ring E, applied to the head B, except that the ring H is provided in its body with openings *h'*, through which the coarse material is discharged.

I represents the longitudinal ribs of the reel-frame, secured with their ends to the heads B and F by means of outwardly-turned ears *i*, so that the ribs are located at a short distance inwardly from the peripheries of the heads B and F.

J represents the covering of wire-cloth applied to the heads B and F and forming the inner bolting-surface, and K represents the covering of bolting-cloth applied to the heads E and H and forming the outer bolting-surface. The clothing J is supported by rings *j*, which are connected to the ribs I by means of intermediate posts, *j'*, through which pass fastening-bolts *j''*, whereby the rings *j* are secured to the posts and the latter to the ribs, as represented in Fig. 7. The posts *j'* are provided on one side with ears *j'''*, on which

are supported stay-pieces  $k$ , which support rings  $k'$ , over which the outer cloth,  $K$ , is stretched. The stay-pieces  $k$  are secured to the ears  $j^3$  by bolts  $k^2$ , which serve, also, to secure the rings  $k'$  to said stay-pieces. The peripheral flanges of the heads  $B$  and  $F$  are provided with annular recesses  $l$ , in which are placed rings  $L$ , provided with lacing-hooks; and the ends of the clothing  $J$  are provided with strips of ticking,  $l'$ , which are also provided with lacing-hooks, and the two sets of lacing-hooks at each end of the reel are connected by a lacing-cord, whereby the cloth is stretched on the reel. The outer cloth,  $K$ , is provided at one end with a rim,  $m$ , which is held on a recess,  $h^2$ , of the ring  $H$  by a ring,  $n'$ , as clearly shown in Fig. 5, and its opposite end with a binding of ticking,  $n$ , provided with lacing-hooks, which are connected by a lacing-cord with similar hooks applied to the ring  $n'$ , which is seated in a recess formed in the flange  $e$  of the ring  $E$ . The rings  $L$  are applied to the heads  $B$  and  $F$  before the rings  $E$  and  $H$  are secured to said heads, and the cloth  $J$  is stretched on the heads  $B$  and  $F$  before the outer cloth,  $K$ , is applied to the rings  $E$  and  $H$ .

$o$  represents a series of radial bars or rods, secured with their outer ends in the ribs  $I$ , and connected at their inner ends to a ring,  $o'$ , which is provided with radial openings  $o^2$ , for the reception of the inner ends of said rods, and in which openings said rods are secured by set-screws  $o^3$ .

$o^4$  represents sliding weights applied to the rods  $o$ , so as to move on said rods between the ribs  $I$  and the ring  $o'$ . The ring  $o'$  is rigid, and the rods  $o$  are rigidly connected to said ring, so that the latter forms a rigid abutment, against which the knockers strike at the end of their inward movement. The blow of the knocker against the ring is transmitted by the rod  $o$  to the reel-frame, so that the latter is rapped at every inward and outward movement of the knocker. As the reel rotates, the weights resting upon the ring  $o'$  are by the change in position of the rods caused to descend on the rods and strike the ribs  $I$  or the ring  $o'$  with sufficient force to jar the bolting-cloth of the reel and dislodge any material which may adhere to the same. As both the inner and the outer bolting-cloths are supported on the ribs  $I$ , the jar of the weights is transmitted by the supporting parts to the outer bolting-cloth, whereby the latter is also kept clear.

$P$  represents the spout or receptacle which receives the tailings from the opening  $f$ , and discharges the same through the inclosing-casing of the machine.

$Q$  represents a screw-conveyer, of any suitable construction, arranged underneath the reel, and having its trough  $q$  formed with suitable openings and slides,  $q'$   $q^2$ , whereby the material collected by the conveyer can be discharged.

$R$  represents a transverse partition secured

in the inclosing-casing at the tail end of the reel, so as to separate the space which receives the material bolted through the outer covering,  $K$ , from the space  $R'$ , which receives the material passing out through the openings in the ring  $H$ . The bottom of the space  $R'$  is provided with an opening and slide, through which the material delivered into said space can be withdrawn. The shaft of the conveyer  $Q$  is rotated by an endless chain,  $s$ , or other suitable means, and preferably provided with stirrers  $s'$  in the lower part of the space  $R'$ , to facilitate the discharge of the material therefrom.

The machine represented in the accompanying drawings is more especially designed for use as a scalping-reel in the system of gradual reduction, where it is desirable to effect a quick separation of the flour and middlings from the coarse particles in order to prevent the impurities contained in the wheat from deteriorating the quality of the flour or middlings. This object is effectually attained by my improved machine. The reduced material enters the reel through the spout  $a$ , and the inner bolting-surface,  $J$ , separates the flour and middlings from the coarser wheat-fragments, while the outer covering,  $K$ , separates the flour from the middlings. The flour is sifted through the covering  $K$ , while the middlings escape through the openings of the ring  $H$  into the space  $R'$ , and the wheat-fragments or other coarse tailings are elevated by the ribs  $g$  and discharged through the openings  $f$  and spout  $P$ .

I claim as my invention—

1. The combination, in a bolting-reel, of two concentric bolting-cylinders,  $K$   $J$ , a feed device whereby the material to be bolted is delivered into the inner bolting-cylinder, deflector  $G$ , ribs  $g$ , and head  $F$ , provided with opening  $f$ , whereby the tailings are discharged from the inner bolting-cylinder, and the perforated ring  $H$ , secured to the head  $F$ , whereby the tailings are discharged from the outer bolting-cylinder, substantially as set forth.

2. The combination, with the heads  $B$   $F$  and longitudinal ribs  $I$ , of the standards  $j'$ , supporting the inner bolting-cylinder,  $J$ , and standards  $k$ , secured to the standards  $j'$ , and supporting the outer bolting-cylinder,  $K$ , substantially as set forth.

3. The combination, with the head  $B$ , provided with feed-hood  $B'$  and openings  $e$ , and the head  $F$ , provided with opening  $f$ , deflector  $G$ , and ribs  $g$ , of the longitudinal ribs  $I$ , secured to the heads  $B$  and  $F$ , ring  $E$ , secured to the head  $B$ , perforated ring  $H$ , secured to the head  $F$ , standards  $j'$ , secured to the ribs  $I$  and supporting the inner bolting-cylinder, and standards  $k$ , secured to the standards  $j'$  and supporting the outer bolting-cylinder, substantially as set forth.

4. The combination, with the heads  $B$   $F$ , longitudinal ribs  $I$ , and concentric bolting-cylinders  $K$   $J$ , of posts  $j'$ , provided with ears  $j^3$ , and secured to the ribs  $I$ , posts  $k$ , secured

to the ears  $j^3$ , and rings  $j$  and  $k'$ , secured, respectively, to the posts  $j'$  and  $k$  and supporting the bolting-cylinders, substantially as set forth.

5 5. The combination, with the heads B and F, provided with annular recesses  $l$ , rings L, seated in said recesses, inner bolting-cloth, J, and stretching devices connecting said bolting-cloth with the rings L, of the rings E and  
10 H, detachably secured to the heads B and F, outer bolting-cloth, K, and stretching devices whereby the outer bolting-cloth is attached to the rings E and H, substantially as set forth.

15 6. The combination, with a reel-frame composed of end heads, B F, and connecting-ribs I, of radial bars or rods  $o$ , secured with their outer ends to the ribs I, a rigid ring,  $o'$ , to which the inner ends of the bars  $o$  are secured, and sliding knockers  $o^4$ , mounted on said rods  
20 or bars, substantially as set forth.

7. The combination, with a reel composed of end heads and connecting longitudinal ribs, inner and outer standards rigidly connected to said ribs, and two concentric bolting-cylinders supported on said standards, of rods or  
25 bars secured with their outer ends to said ribs, and connected with their inner ends to a rigid abutment, and sliding knockers mounted on said bars, whereby both bolting-cylinders are jarred simultaneously by every move-  
30 ment of a knocker, substantially as set forth.

Witness my hand this 25th day of June, 1884.

AUG. HEINE.

Witnesses:

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C. F. GEYER.