960,472.

W. M. WILKIN.

GANG SAW MILL.

APPLICATION FILED DEC. 12, 1908.

Patented June 7, 1910.

3 SHEETS—SHEET 1.

Fig 1.

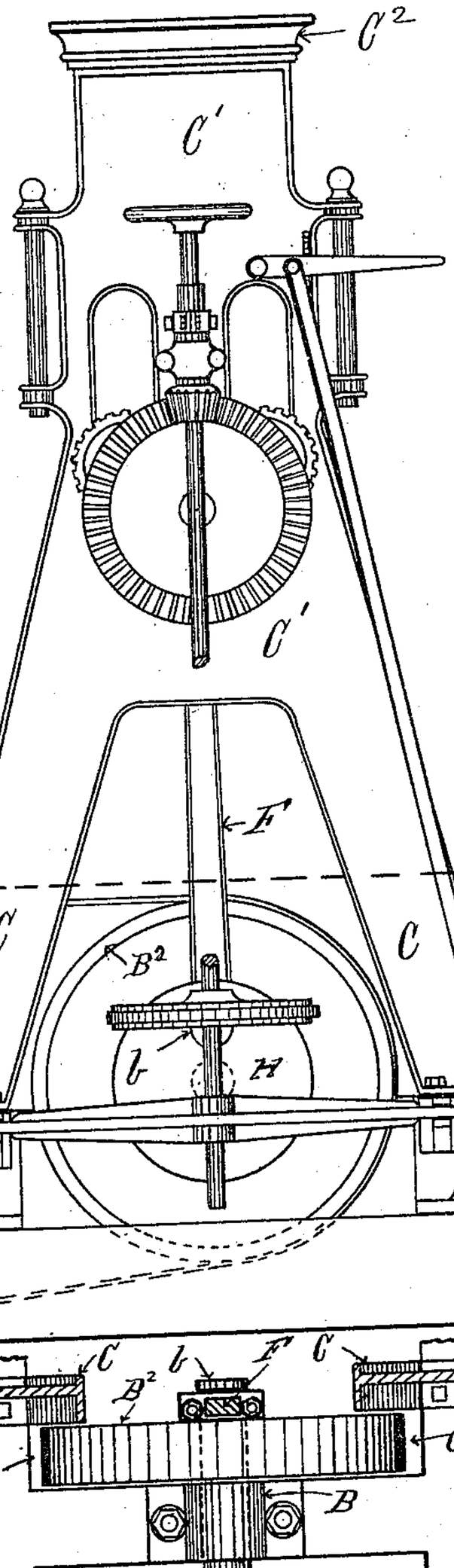

Fig. 2.

Witnesses.

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3 SHEETS—SHEET 2.

Fig. 3.

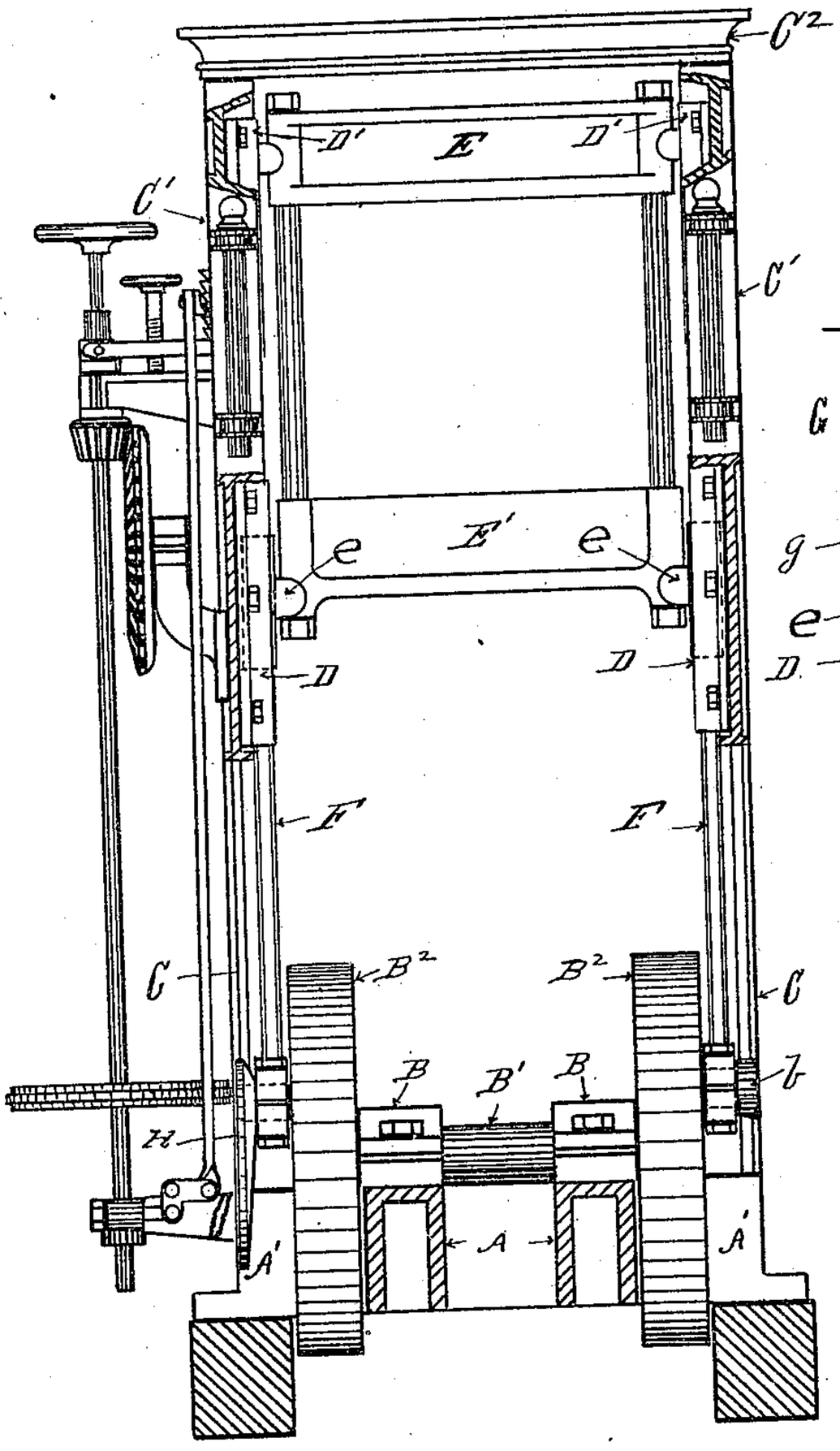


Fig. 4.

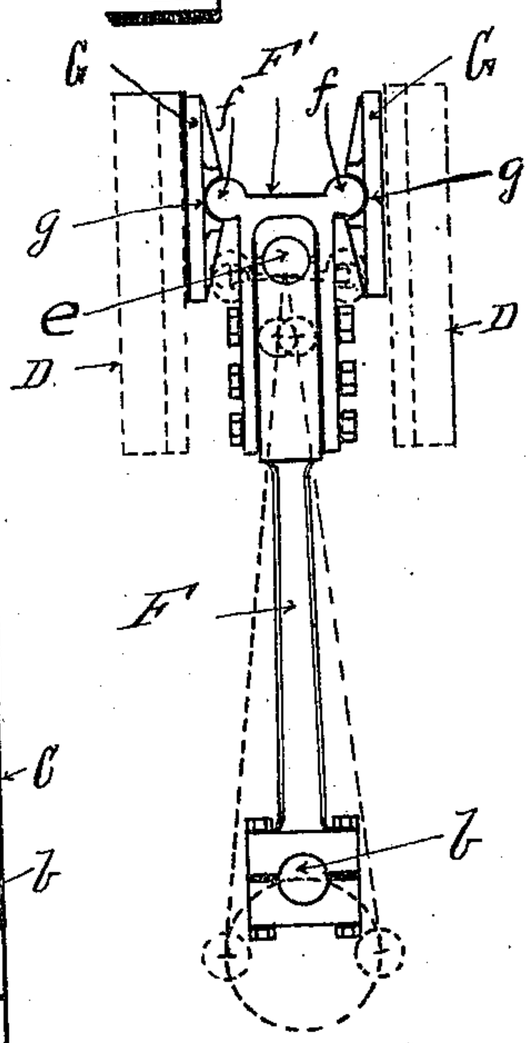


Fig. 5.

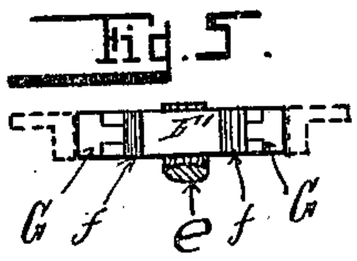
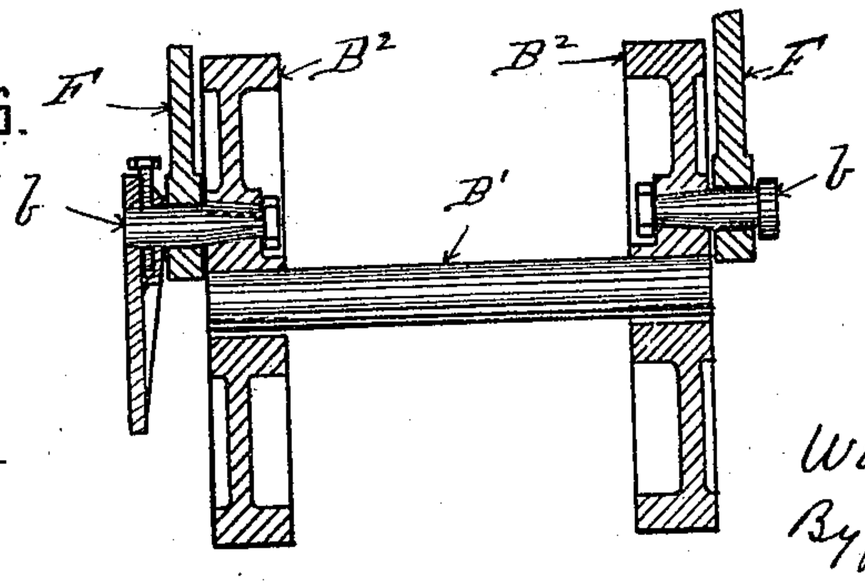


Fig. 6.



Witnesses.

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960,472.

Patented June 7, 1910.

3 SHEETS—SHEET 3.

Fig. 7.

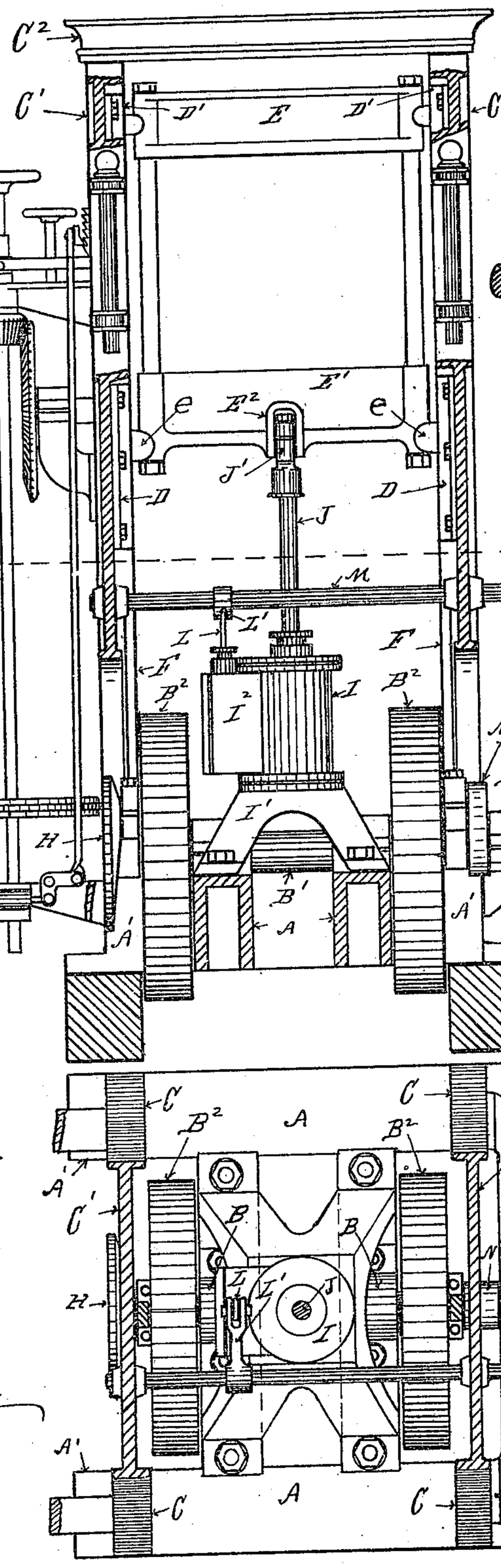

Fig. 9.

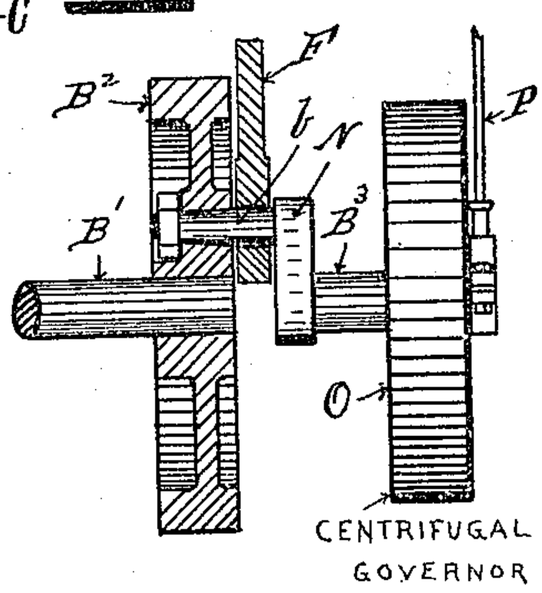

Fig. 10.

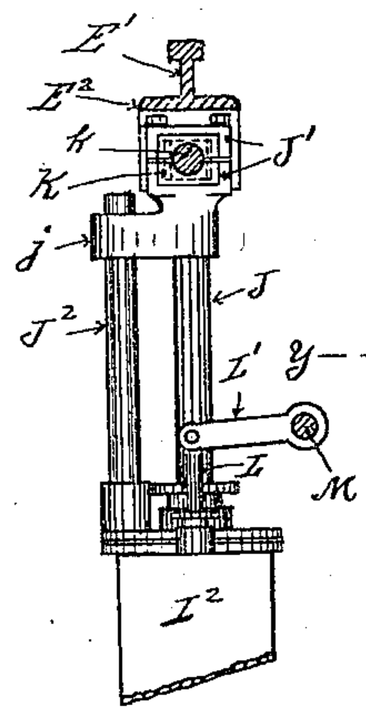

Fig. 11.

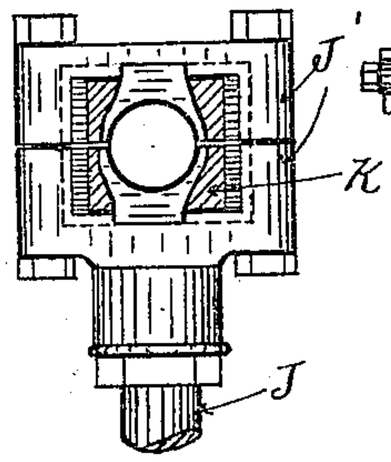

Fig. 8.

Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM M. WILKIN, OF ERIE, PENNSYLVANIA.

GANG-SAW MILL.

960,472. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed December 12, 1908. Serial No. 467,243.

To all whom it may concern:

Be it known that I, WILLIAM M. WILKIN, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Gang-Saw Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to gang-saw mills, and has for its objects the improvements in the construction of the sash-guide mechanism, and the pitmen connections therewith, so that the upper ends of the pitmen are pivoted to horns on the ends of the lower sash-girt which extend between the lower sash-guides on the mill frame, the end of the pitmen projecting upward beyond the said horns where they are provided with laterally projecting ears which engage the slides operating in the lower sash-guides, and with the lower ends of the pitmen mounted preferably on wrist-pins in the outer faces of band-wheels which are mounted on the ends of a straight shaft inside of the side frames of the mill so that the pitmen will be in a direct line with the sash-guides and at the same time a forward movement of the lower sash-girt is accomplished during its downward traverse, and a backward movement thereof during its upward traverse. Second, the mounting of a steam cylinder on the base frame and connecting the piston rod thereof directly to the lower sash-girt by means of a sliding box and operating the sash thereby, the band wheels then operating as balance wheels and the pitmen at the sides operating as above described to produce the forward movement of the lower-sash-girt during its downward traverse and a backward movement during its upward movement and combining with this structure a centrifugal governor of any of the well known types for regulating the admission of steam to the steam-cylinder.

The features of my invention are hereinafter fully set forth and described and illustrated in the accompanying drawings, in which:

Figure 1 is a view in elevation of a gang-saw mill embodying my invention. Fig. 2 is a horizontal section of same on the line *x—x* in Fig. 1 looking downward. Fig. 3 is a front view in elevation of my improved gang-saw mill. Fig. 4 is an enlarged detail view of one of the pitmen and its guide connections. Fig. 5 is a top or plan view of the slides operating in the guides and the pitmen connection therewith. Fig. 6 is a view of the shaft in elevation with the band-wheels and pitmen in section. Fig. 7 is a front view in elevation of my improved gang-saw mill, embodying a steam cylinder and governing mechanism for operating the saw-sash. Fig. 8 is a horizontal section of the mill on the line *y—y* in Fig. 7, looking downward. Fig. 9 is a detail view showing a centrifugal steam governor and its connections with one of the band-wheels of the mill. Fig. 10 is a detail view showing the connection of the piston rod with the lower sash-girt. Fig. 11 is a detail view showing an enlarged view of the sliding box on the upper end of the piston-rod.

In these drawings A is the base of the mill frame, and is provided with shaft bearings B B in which a shaft B′ is mounted. The base A is also provided with recesses *a a* in which band wheels B^2 B^2 mounted on the ends of the shaft B′ rotate, and the portions A′ of the base A extend laterally far enough beyond the wheel recesses *a* to receive the legs C C of the upright side-frames C′ of the mill, which side frames are secured together at their upper ends by a cap-frame C^2 in the usual manner. These side frames C′ are provided with the usual sash-guides D and D′ to carry the lower and upper ends of the sash E. In the outer faces of the band-wheels B^2 B^2 wrist-pins *b* are secured, upon which pitmen F are mounted, so that their upper ends are in line with the centers of the guides D where they are mounted upon horns *e* which project beyond the ends of the lower sash-girt E′ between the guides D. The upper ends F′ of the pitmen F project some distance above the horns *e* upon

which they are mounted and are provided with laterally projecting rounded ears *f f* which engage in semi-circular recesses *g g* in the slides G G operating in the guides D as clearly illustrated in Fig. 4. The operation of this pitmen and guide mechanism is such, that as the upper ends of the pitmen move downward they operate to move the lower end of the saw-sash forward from a vertical line of travel during its downward movement, and backward from a vertical line of travel during its upward movement, as is clearly illustrated in broken lines in Fig. 4. In this construction I am enabled to locate the pitmen F in direct line with the horns *e* of the sash upon which they are pivoted, and at the same time secure the forward and rearward movement of the lower end of the saw-sash desired.

In the construction hereinbefore described feed-roll operating mechanism is operated by the usual driving disk H, which is mounted eccentrically on one of the wrist-pins *b* concentric with the shaft B′. All of the other features of this feed mechanism are of the usual construction.

In Figs. 7, 8, 9, 10, and 11 I show the construction hereinbefore described combined with a steam cylinder mechanism, and a centrifugal governor for regulating the same. These features consist substantially of an upright steam cylinder I mounted on the base A of the frame by means of a suitable support I′ secured to the top thereof between the band wheels B^2 B^2. This cylinder I is provided with a steam chest I^2, the usual piston (not shown) and a piston-rod J extending upward therefrom. To compensate for the forward and rearward movement of the lower sash-girt E′ by means of the pitmen and guide mechanism hereinbefore described, I provide the upper end of the piston-rod J with a yoke J′ in which a box K mounted on a bearing *k* between flanges E^2 on the lower sash-girt E′ operates. This box K is made of less transverse width than that of the yoke J′ so that it will slide transversely in said yoke, and thereby permit the lower end of the sash E to be moved forward and backward during its downward and upward traverse. To prevent oscillation of the upper end of the piston-rod J, I preferably provide a guide J^2 upon which a slide *j* secured to the upper end of the piston rod J operates. To operate the valve (not shown) of the steam cylinder a valve-rod L is provided which is connected to an arm L′ on a rock-shaft M mounted in the mill frame, and on one of the wrist-pins *b*, I secure a crank N to which there is a short shaft B^3 secured concentric with the main shaft B′, this short shaft B^3 being preferably mounted in a suitable bearing B^5 on a cross-bar A^2 secured to the base A of the mill frame therefor. On the end of the shaft B^3, I secure an ordinary centrifugal governor O (the details of which are not shown), the type thereof forming no part of my invention. The connecting rod P of this governor is connected with an arm P′ on the rock-shaft M so that the rock shaft M is operated thereby.

From the foregoing description the operation of the mechanism of my invention is so obvious that further description thereof is deemed unnecessary.

Therefore having described my invention so as to enable others to utilize the same, what I claim as new and desire to secure by Letters-Patent of the United States is:

1. The combination in a gang-saw mill of a frame, sash guides therein, a saw-sash, horns thereon projecting between said guides, pitmen pivoted on said horns in a vertical line with said guides, laterally extending ears on said pitmen, slides engaging said ears and operating in the guides in the mill frame, and crank mechanism for operating said pitmen, substantially as set forth.

2. The combination in a gang-saw mill, of a mill frame, saw-sash guides in the upright portions thereof, a saw-sash, horns extending therefrom between the guides, a main shaft mounted on the base of the mill frame, crank mechanism thereon in a vertical line with the sash-guides, pitmen mounted thereon and connecting with the lower horns on the saw-sash, extensions on the upper end of the pitmen, lateral ears on said extensions and slides engaging the ears on the pitmen, and operating the sash-guides, substantially as set forth.

3. The combination in a gang-saw mill, of a mill frame, a shaft mounted on the base thereof, band-wheels on said shaft inside of the uprights forming the sides of the mill frame, wrist pins in said band-wheels, guides on the inside faces of the uprights of the frame, a saw-sash, horns on the upper and lower corners thereof extending between the guides on the frame, pitmen pivoted upon the band-wheel wrist-pins extending upward in line with said guides and pivoted upon the lower sash horns between the lower guides on the mill frame, extensions on said pitmen above the horns upon which they are mounted, lateral ears on said extensions, and slides engaging the ears on the pitmen and operating in the lower guides, substantially as set forth.

4. The combination in a gang-saw mill of a frame, sash-guides therein, a saw-sash, a horn thereon, a sash operating pitman engaging said horn in line with the sash-guides, a journal box therein operating on the saw-sash horn, laterally projecting ears on the upper part of the pitman, and slides

engaging said ears and operating in the lower saw-sash guides, substantially as set forth.

5. The combination in a gang-saw mill, of a mill-frame, a saw-sash operating therein, pitman and guide mechanism for moving the lower part of the sash forward during its downward movement and backward during its upward movement, a steam cylinder mounted centrally on the base of the mill-frame, a piston rod extending upward therefrom, a yoke on the upper end of the piston rod, a bearing box mounted on a bearing in the lower saw sash-girt operating in the yoke on the piston rod and moving laterally in said yoke, and valve mechanism for admitting steam to said cylinder, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM M. WILKIN.

Witnesses:
FLORENCE STOCKERT,
H. M. STURGEON.