(No Model.)

2 Sheets—Sheet 1.

C. H. KNIGHT.

SAWMILL SET WORKS.

No. 561,592. Patented June 9, 1896.

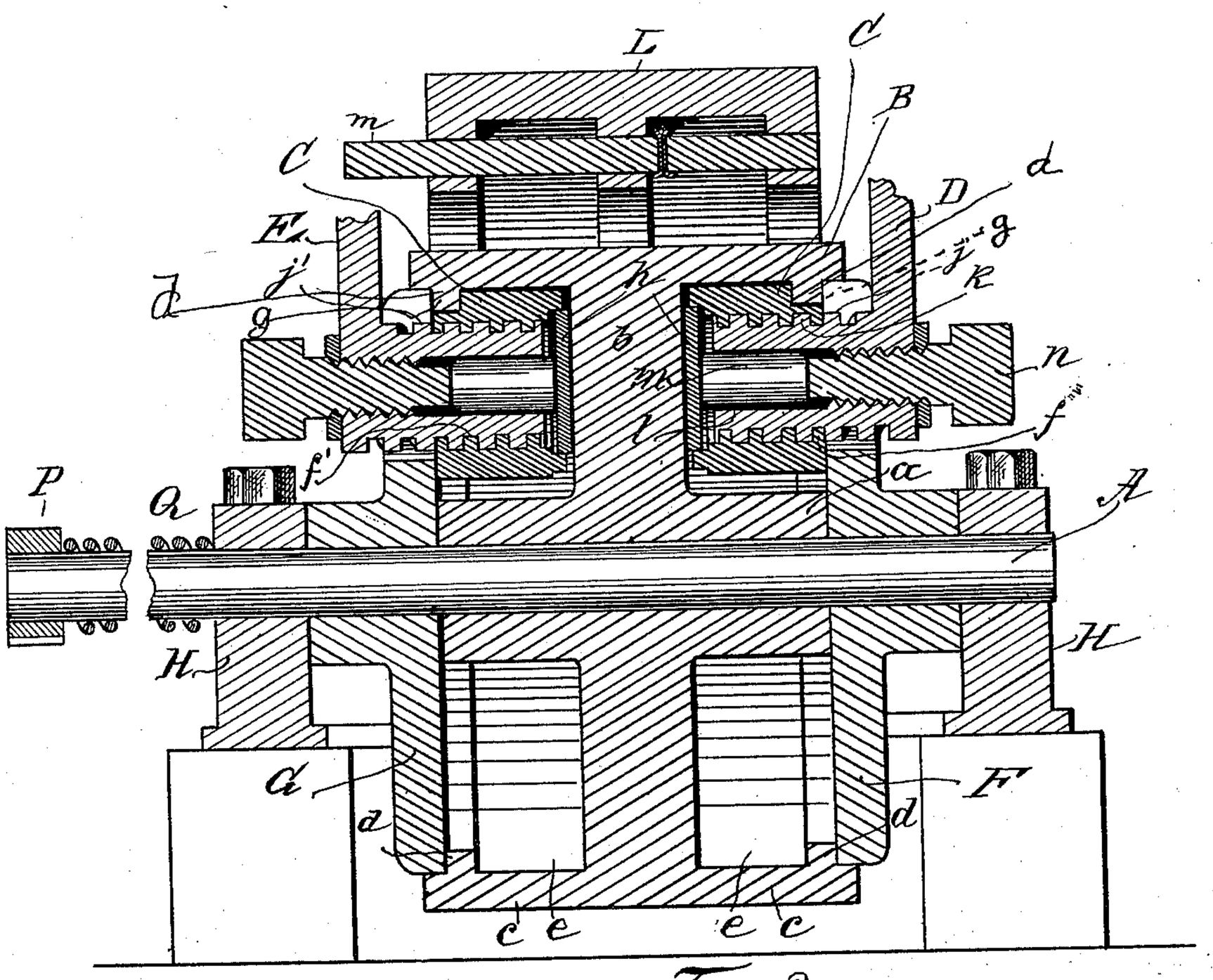

Fig. 2

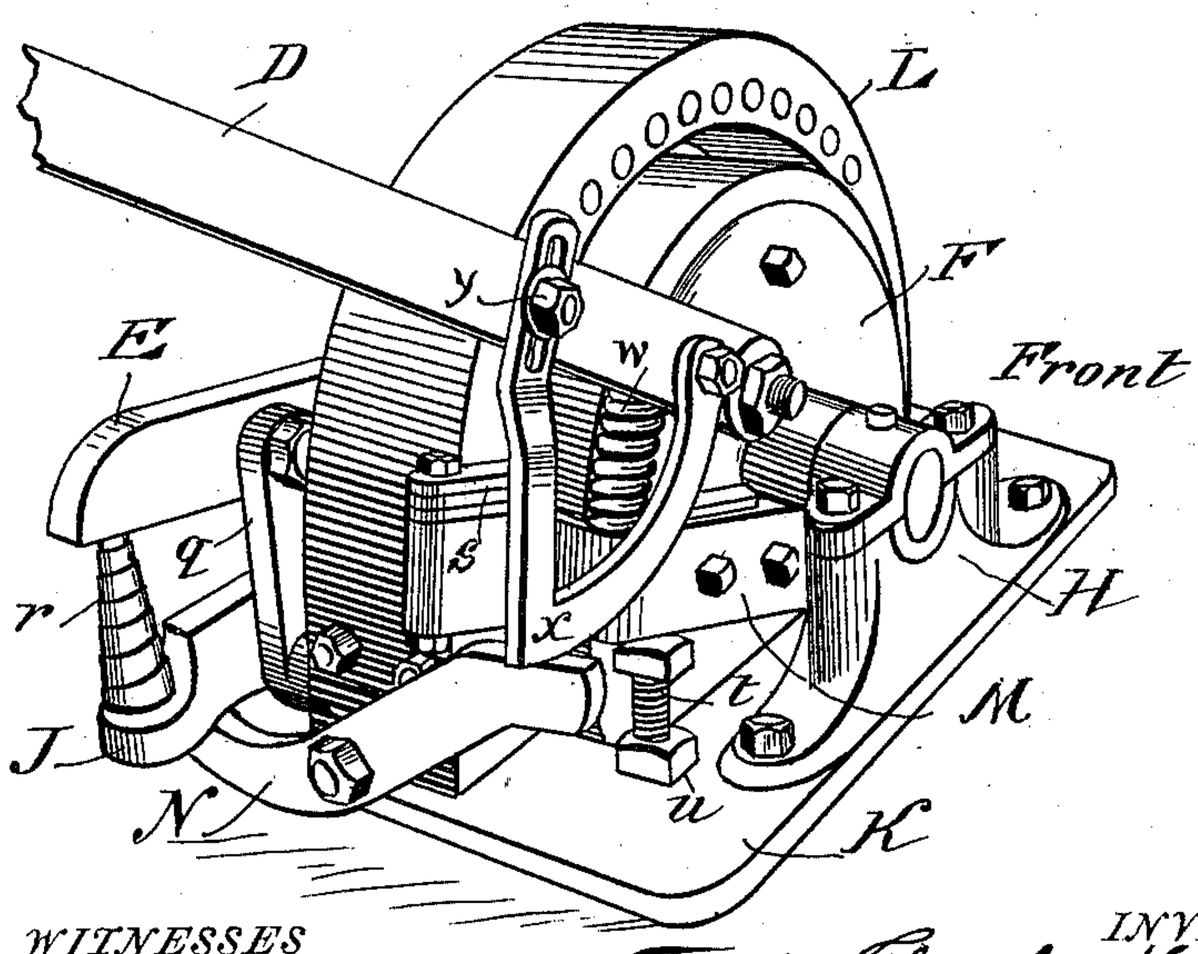

Fig. 1

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(No Model.) 2 Sheets—Sheet 2.

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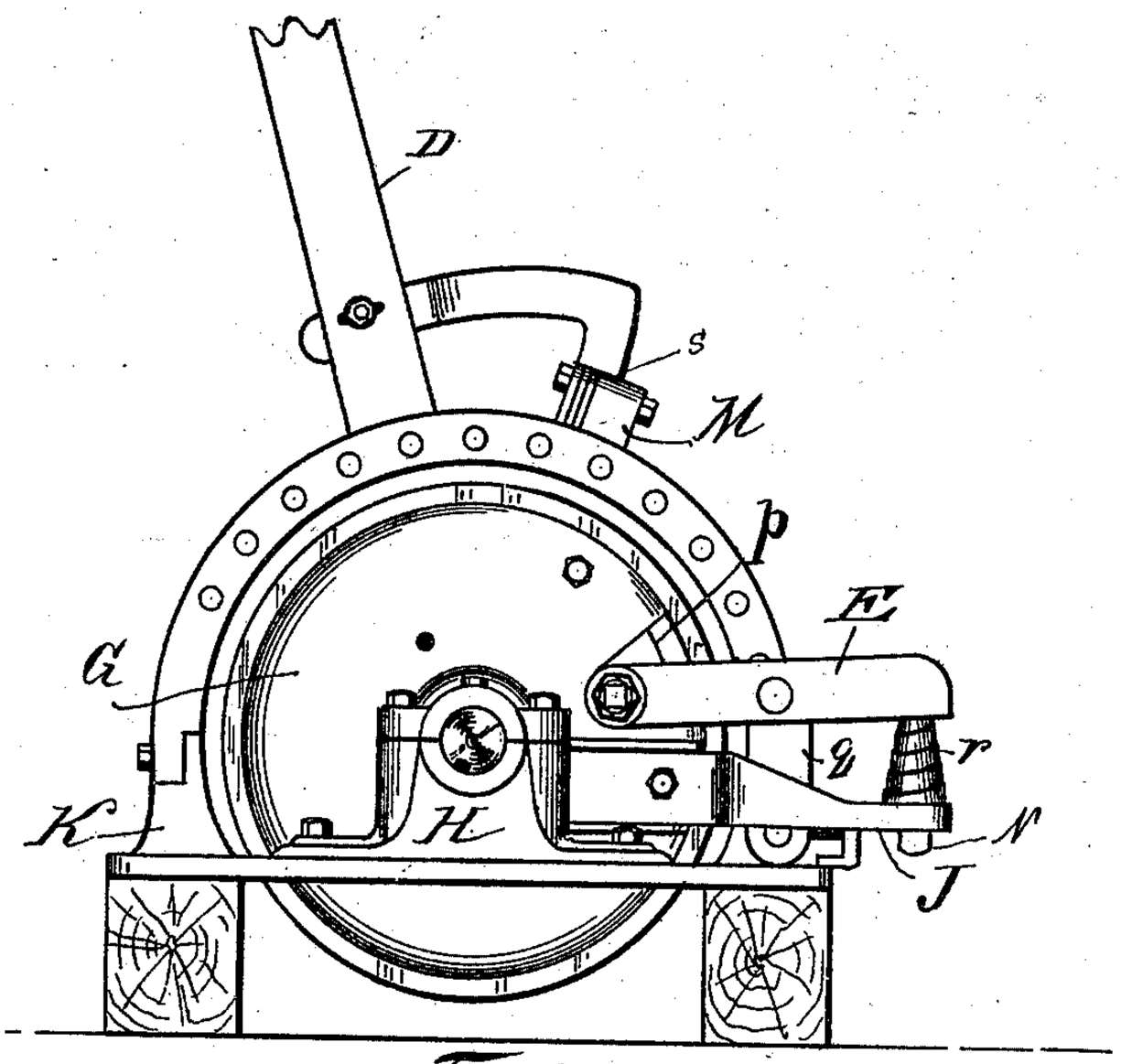

Fig. 3

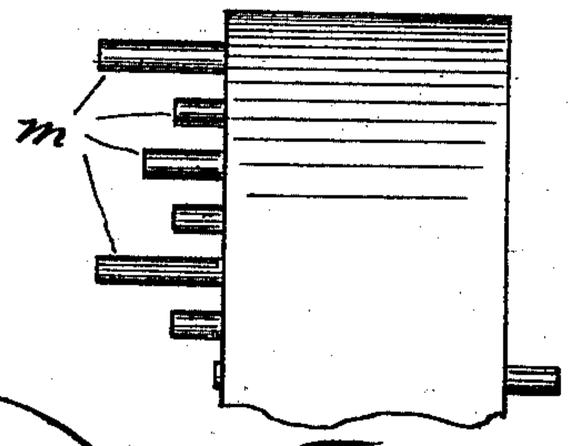

Fig. 4

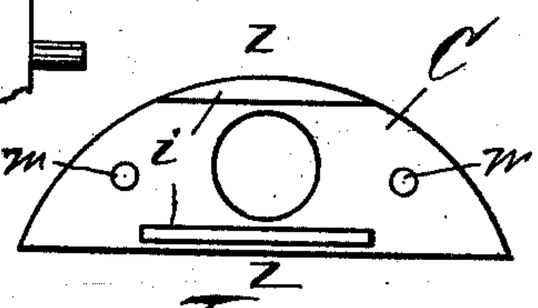

Fig. 6

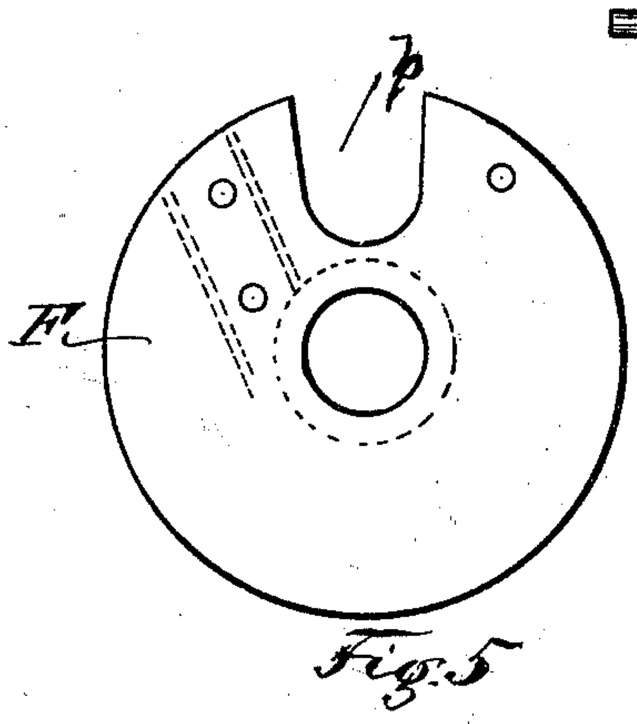

Fig. 5

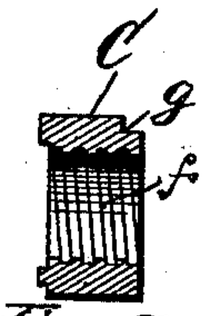

Fig. 7

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UNITED STATES PATENT OFFICE.

CHARLES H. KNIGHT, OF CANTON, OHIO.

SAWMILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 561,592, dated June 9, 1896.

Application filed June 10, 1895. Serial No. 552,220. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. KNIGHT, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Sawmill Set-Works, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to improvements in sawmill set-works, and particularly to that class commonly known as "friction" set-works; and it consists of certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

Figure 1 of the accompanying drawings is a view in perspective of the invention from the rear. Fig. 2 is a vertical section with the actuating-lever and locking mechanism turned above the supporting-shaft. Fig. 3 is a side view showing the locking mechanism. Fig. 4 is a rear view of a fragment of the arch, showing the gage-pins. Fig. 5 is a side view of side plate. Fig. 6 is a similar view of brake-shoe. Fig. 7 is a cross-section of shoe from *z* to *z*, Fig. 6.

A denotes the supporting-shaft, on which the friction-wheel B is mounted, as shown in Fig. 2, said wheel having a hub *a*, by which it is secured to the shaft, a central web *b*, and an overhung rim *c*, having inwardly-projected flanges *d*, thus forming recesses *e* in the sides of the wheel B, in which are placed friction-shoes C, in one of which is provided an annular screw-thread *f*, as shown in Figs. 2 and 7. In the outer edge of the shoe C is provided a rabbet *g* to receive the flanges *d*, as shown in Fig. 2. Steel soles *h* are placed in the side of the shoe, as shown in Fig. 2, and held against displacement by the ribs *i*. (Shown in Fig. 6.)

The shank *j* of hand-lever D is provided with an annular right-hand screw-thread *k*, adapted to the thread *f* in the shoe C. The shank is also provided with a central aperture *l* to receive a loosely-fitted plug *m*. The outer end of the aperture *l* is threaded, as shown, and a set-screw *n* turned therein to adjust the steel sole *h* to the web *b* of the wheel B. The object sought by the use of the sole *h*, the plug *l*, and screw is to provide against lost motion of the lever D in the case of wear, as it is of the utmost importance that distance traveled by the lever D shall rotate wheel B a previously-determined distance, and to secure that object if there should be a wearing away of the web *b* or the flange *d* the screw *n* may be turned in to carry the plug against the web, and thereby restore the former action of the parts.

The description of the shank *j* of lever D and the parts connected and acting in conjunction therewith will apply to shank *j'* of lever E and the parts connected with and acting in conjunction with the latter, and will need no further explanation, excepting that the screw-thread on shank *j'* is left hand, while the thread on shank *j* is right hand.

Side plates F and G, having recesses, as *p*, in the periphery to receive the shank portions of the levers D and E, are loosely mounted on the shaft A between the hub *a* of the wheel B and the pillow-blocks H. An arm, as J, is secured to the plate G, as shown in Fig. 3, and lever E connected to the base K by a link *q*, the outer end of the lever resting on a coiled spring *r*, supported on the arm J, for a purpose hereinafter explained.

L designates an arch-piece having therein a series of gage-pins *m*, which will be hereinafter explained. To the side plate F is secured a register-arm M, having pivotally secured at its outer or free end register or gage plates *s*, representing a fraction of an inch— for the purposes of this application I will say one-sixteenth of an inch. Under the arm M is provided a gage-pin *t*, the threaded end portion of which is turned into a threaded aperture in the base-plate K and secured by the jam-nut *u*. By this pin the desired distance between the arm or the face of either of the plates *s* and either of the gage-pins *m* may be determined to a thousandth part of an inch.

Between the arm M and the lever D is placed a coiled spring *w*, the energy of which is exerted to hold the arm and the lever apart, and on the lever is provided an adjustable tripping-arm *x*, one end of which is pivotally secured to the lever, as shown, the other end being held in desired adjustment by the bolt *y*.

At the rear side of the base-plate K is piv-

otally secured an arm, as N, one end to rest under the arm J, the other to engage the tripping-arm *x*.

On the end of the shaft A is mounted a pinion P, (shown in longitudinal section,) adapted to engage the rack usually provided on the under side of the knee, (not shown, but in the usual way,) and about the shaft is placed the usual reversing-spring Q.

In operation to move the log forward the lever D is thrown forward, by which movement the threaded shank *j* will be turned in against the plate or sole *h* to press it against the web *b* of the wheel B, by which the wheel is rotated a distance to turn the shaft A and pinion P, to move the knee and the log forward a distance previously determined by the disposition of the gage-pins *m* and plates *s*, and by this rotation of the wheel B in the direction mentioned the side plate G, being at this time in the unlocked position, will be rotated a slight distance, turning onto the shank *j'* a distance, which will release the pressure of the shoe-plate *h* on the web *b* of wheel B to allow it to rotate, and the instant the pressure on the lever D is released and the rotation of the wheel B stopped the spring *r* will raise the outer end of the arm E to reverse the side plate G, which movement will turn the shank *j'* into the shoe C and the plate *h* against the web *b* of the wheel to lock it in the desired adjustment. For illustration, if it is desired to saw board one-half inch thick the lever D will be moved forward until the face of the plates *s* strikes the first pin moved into position, as shown in Fig. 4, and to increase the thickness one-sixteenth one of the plates will be turned back or over on the arch out of reach of the pin, and to cut a one-inch board the first pin would be pushed back and the second pin into gaging position, and the plates all turned into position shown, and to increase the thickness one-eighth two of the plates *s* should be turned back over the arch out of the way of the pin, and so on will the log be moved to the saw until it has been cut into lumber of desired thickness, after which the lever D is drawn back until the tripping-arm *x* is brought in contact with the free end of the arm N. The arm M resting on the set-bolt *u* the spring *w* will yield to allow the lever D to move back to carry the arm *x* down to the arm N, which will raise the outer end of arm J, thereby rotating the side plate G a distance to relax the pressure of the screw *j''* on the shoe-plate *h* to release the grip on the web of the wheel to allow the carriage or knees to move back to the place of beginning by the energy of the spring Q, which will rotate the shaft A and pinions P, which have engagement with the rack usually provided on the knees. It will be noticed that as the actuating-lever D is moved forward the threaded shank is driven through the shoe and against the shoe-sole, forcing the sole against the wheel and the shoe against the rib *d*, locking the lever to the wheel, whereby the wheel may be rotated to move the log to the saw, and when the lever is reversed the threaded shank will be turned out.

The shoes C and C' are doweled or loosely pinned to the plates F and G on the ends of the bolts *l*, passing into the shoes, so that the shoes are carried about the shaft A by the plates F and G. The movement of plate G and shoe C' is not probably over one-eighth of an inch, yet it is sufficient to cause the shoe to move on the threaded shank about the one-hundredth part of an inch, which movement will ease the grip of the shoe C' and plate *h* on the wheel B, not to disengage them but to hold them in a sliding relation, so that the instant that the forward pressure on the lever D is slackened the spring *r* will instantly act to lift the outer end of the lever E, which movement will rock the plate back to its normal position, whereby the threaded shank will move the shoe and plate back into a locking engagement with the wheel B. When it is desired that the wheel B should be free to be rotated freely, reverse the lever movement by the spring Q. To do this, the lever D is drawn back. The arm *x* pressing down on the arm N will raise the outer end of arm J and the inner end of arm E, and thereby rock the shoe on the threaded shank a sufficient distance and release the grip of the shoe and plate on the wheel B, and when the pressure of the arm *x* is removed the spring *r* will throw the outer ends of arms E and J apart and thereby rock the plate and shoe back into locking engagement with the wheel B.

Having thus fully described the nature and object of my invention, what I claim is—

1. The combination in a sawmill set-works, of the base K, shaft A and a friction-wheel B, having a central web, overhung flanges *d* and recesses *e*, of the shoe C, having a right-hand screw-thread therein, the lever D, having a threaded shank adapted to the thread in the shoe C, and axially perforated, a slidable plug and a screw therein, a shoe-plate *h* by which the wheel B is held in desired adjustment, substantially as described, and for the purpose set forth.

2. The combination in a sawmill set-works, of the supporting-plate K, and shaft A, of the friction wheel and shoe, the actuating-lever having a threaded shank adapted to turn into a similar thread in the shoe, to press the sole of the shoe against the friction-surface of the wheel, to grasp and hold the wheel, substantially as described and for the purpose set forth.

3. The combination in a sawmill set-works, of the base K and shaft A, the friction-wheel and friction-shoes, and the actuating-lever having a threaded shank adapted to turn in one of said friction-shoes to grasp the friction-wheel, the side plate F, arm M, gage-pins *m*, spring *w* and clutch to hold the friction-wheel against rotation, substantially as specified.

4. The combination in a sawmill set-works,

of the base K and shaft A, of the friction-wheel and friction-shoes, the actuating-lever D, adapted to engage the shoe with the wheel, the side plate G, the trip-lever N the trip *x*, on the lever to engage the trip-lever N, whereby the side plate G is slightly rocked on the shaft A, to release the friction-shoe C′, to allow the supporting-shaft and friction-wheel to be reversely rotated, substantially as described and for the purpose set forth.

5. In a sawmill set-works, the combination with the actuating-lever and friction-wheel, and shoe E, having a threaded shank, adapted to the thread in the shoe, the side plate G, arm J, spring *r*, and trip-lever N, whereby the actuating-lever D, may move the parts to release the grip of the shoe on the wheel, substantially as described and for the purpose set forth.

6. The combination in a sawmill set-works, of the base supporting-shaft, and friction-wheel, of a clutch or shoe, to engage the wheel, an arm E, having on the shank thereof, a screw-thread adapted to the thread in the shoe, and a link connection with the base, side plate G, arm J, secured thereto, a spring to throw the outer ends of the arms apart, to rock the plate G on the shank, to force the shoe against the friction-wheel, to hold it in desired adjustment, substantially as described and for the purpose set forth.

7. The combination in a sawmill set-works, of the friction-wheel and shoe, to engage the wheel, the actuating-lever, the arch L, gage-pins *m*, arm M, plates *s*, and set-screw *u*, substantially as described and for the purpose set forth.

8. The combination in a sawmill set-works, of the base K and shaft A, of the friction-wheel B, and a clutch or lock mechanism comprising the wheel B, shoe C, lever E, arm J, and spring *r*, whereby the wheel B may be locked and held against reverse movement, substantially as described and for the purpose set forth.

9. The combination in a sawmill set-works, of a supporting base and shaft, of a friction-wheel, mounted on said shaft, having a friction surface and shoes to engage said surfaces, an actuating-lever having a threaded shank portion, to move one of said shoes into engagement with the wheel, to rotate the wheel to move the log to the saw, a lever E, having a threaded shank to turn the other shoe against the wheel, to hold said wheel against a reverse movement, and a tripping mechanism to release the last-mentioned shoe, to allow the spring Q to reverse the wheel, to move the knees back to the place of beginning, substantially as described.

In testimony whereof I have hereunto set my hand this 28th day of May, A. D. 1895.

CHARLES H. KNIGHT.

Witnesses:
W. K. MILLER,
BURT A. MILLER.