

(No Model.)

2 Sheets—Sheet 1.

S. SLOAN.

MECHANISM FOR CONVERTING MOTION.

No. 497,478.

Patented May 16, 1893.

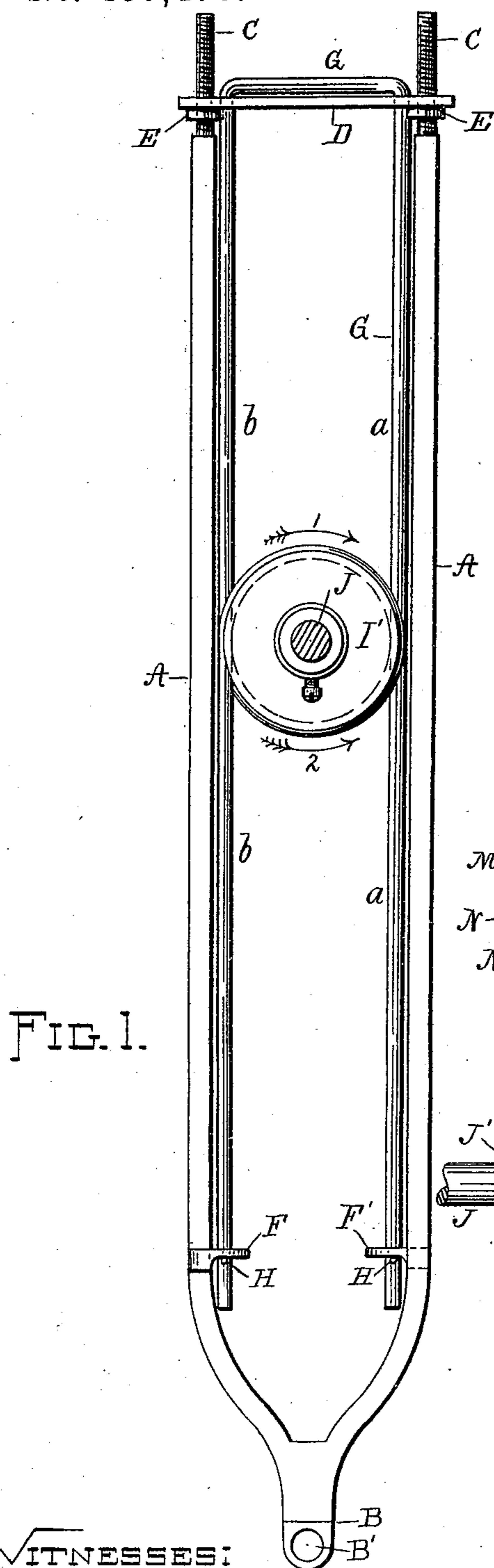


FIG. 1.

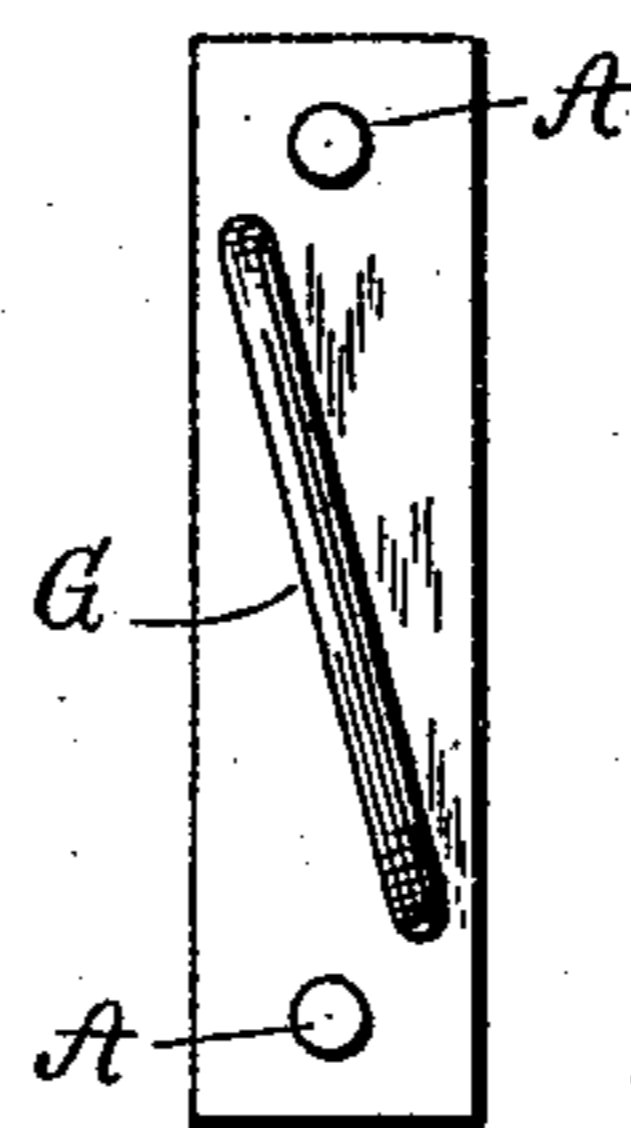


FIG. 3.

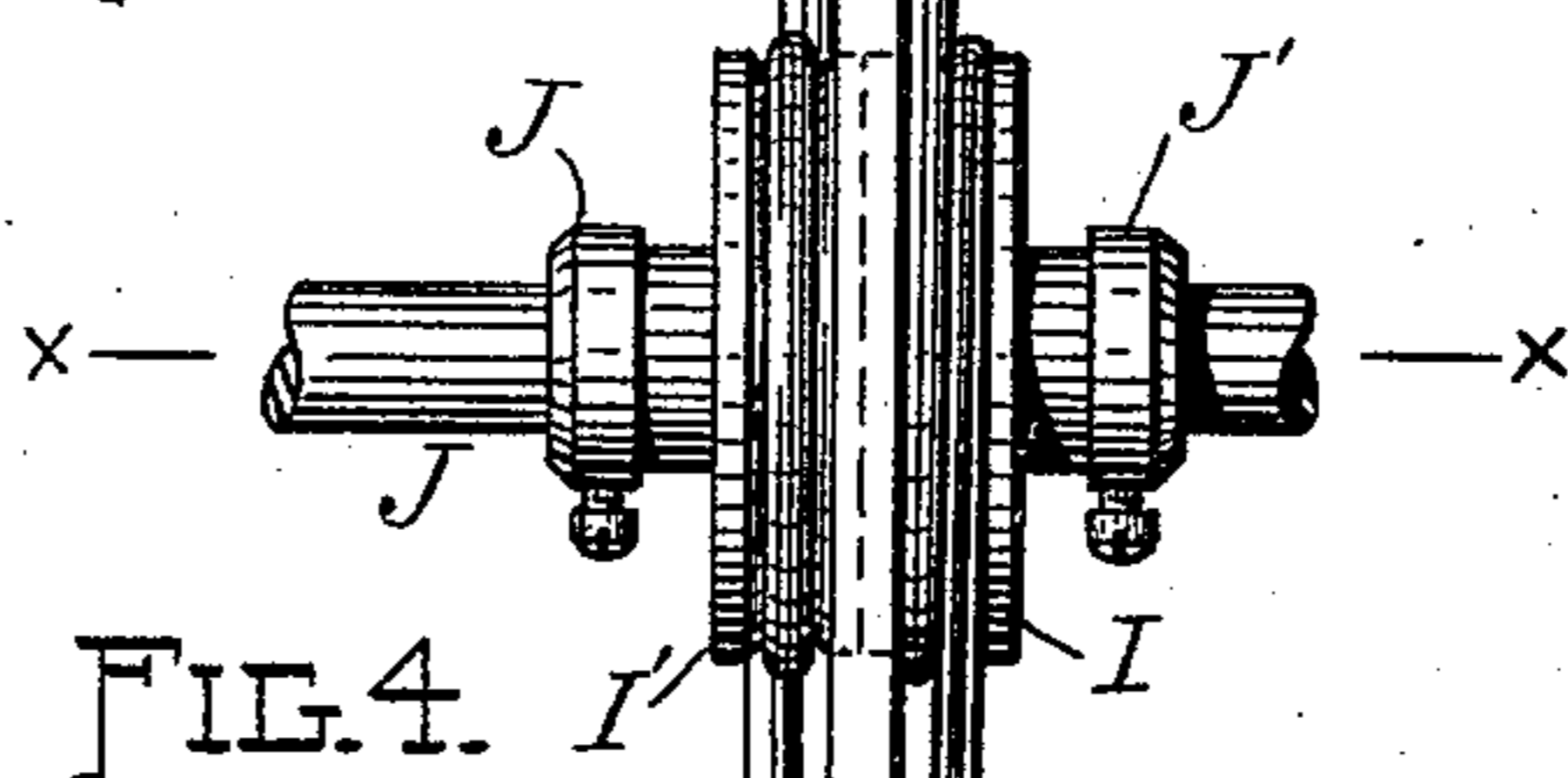


FIG. 4.

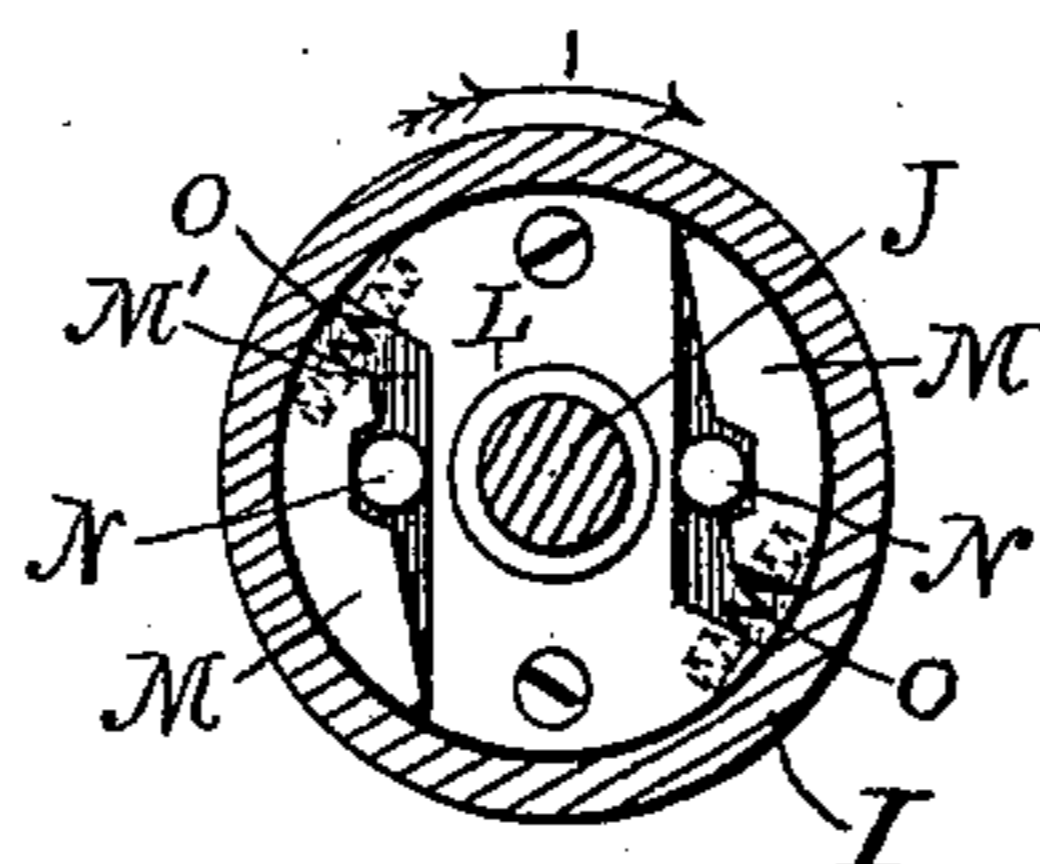


FIG. 5.

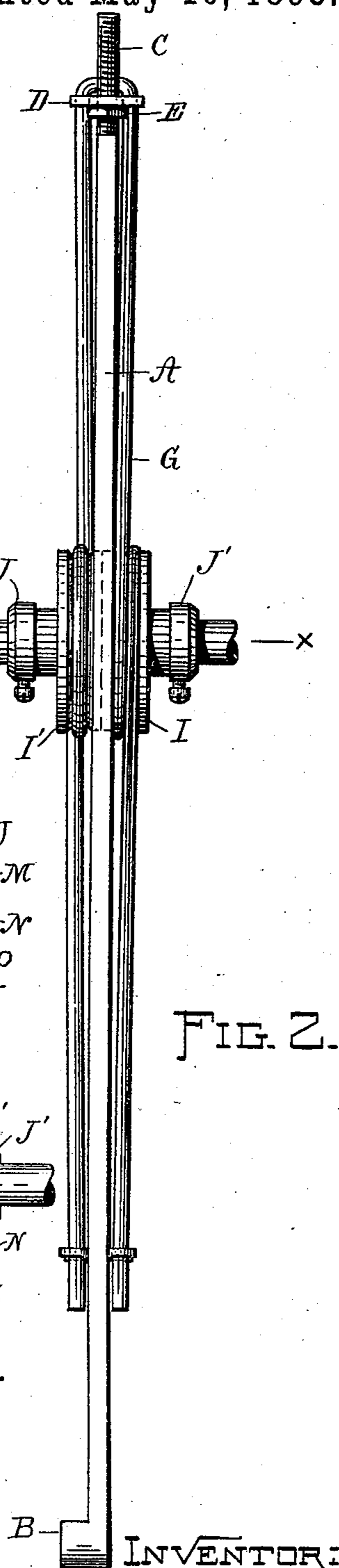


FIG. 2.

WITNESSES:
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J. A. Meaker.

INVENTOR:
S. Sloan
By W. H. Burdick
att.

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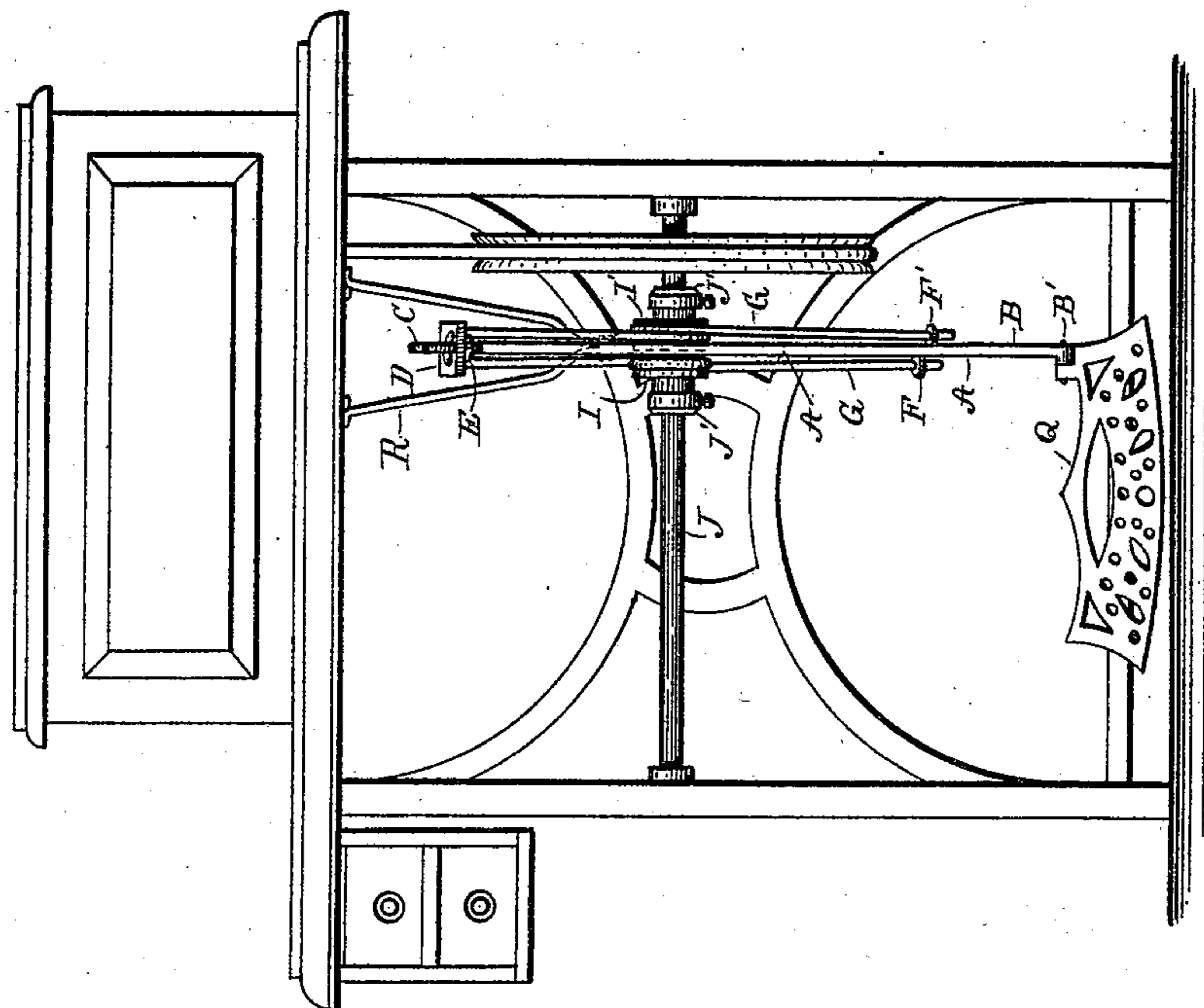


FIG. 7.

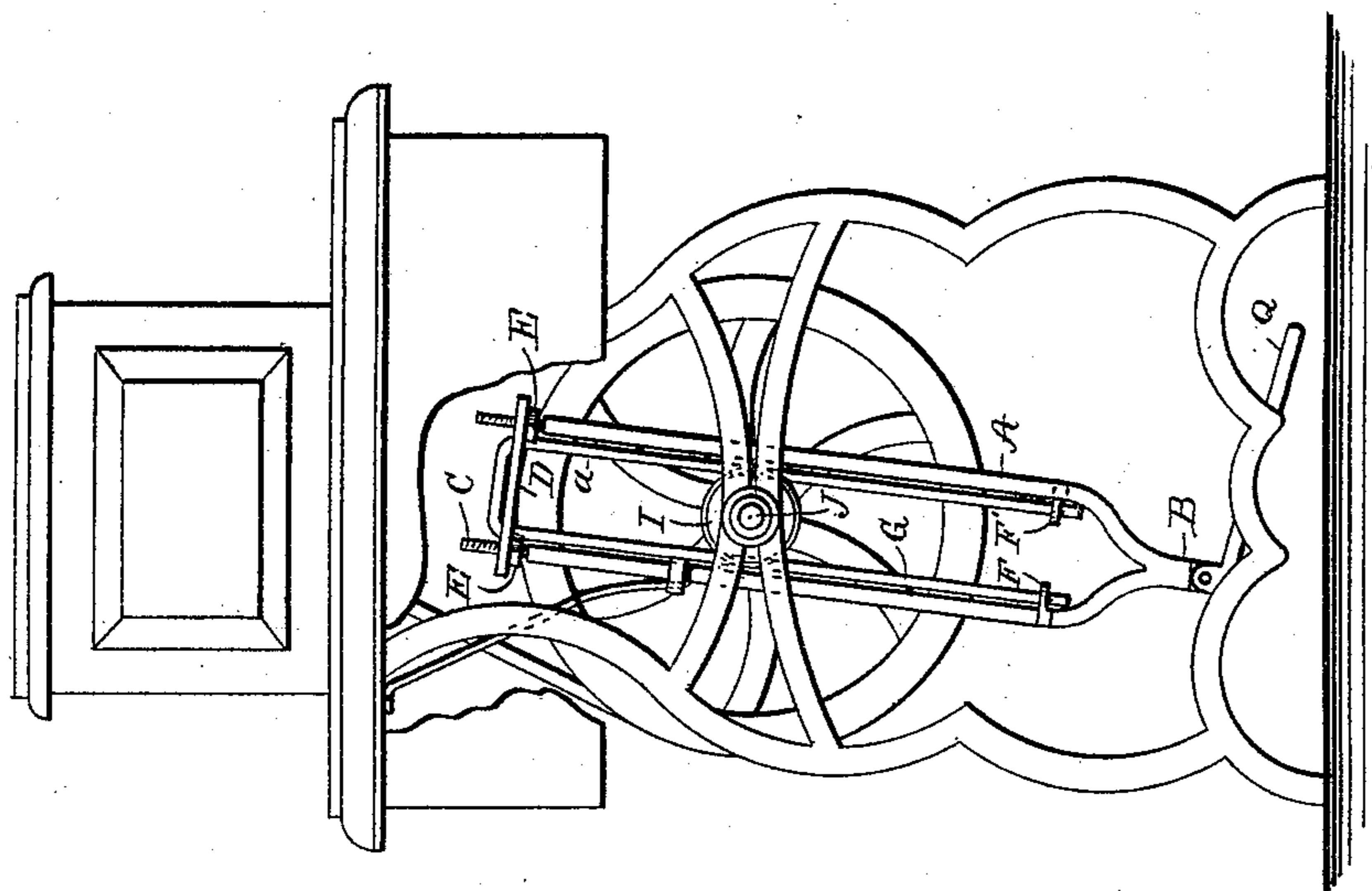


FIG. 6.

WITNESSES:

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J. A. Weaver

INVENTOR:

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UNITED STATES PATENT OFFICE.

SEXTUS SLOAN, OF PAINESVILLE, OHIO.

MECHANISM FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 497,478, dated May 16, 1893.

Application filed August 30, 1892. Serial No. 444,597. (No model.)

To all whom it may concern:

Be it known that I, SEXTUS SLOAN, a citizen of the United States, residing at Painesville, in the county of Lake and State of Ohio, have invented a certain useful Mechanism for Converting Motion, of which the following is a full and complete description thereof.

The nature of my invention relates to certain mechanism arranged to substitute the ordinary crank, and especially on sewing machines, whereby the power is communicated during the entire revolution of the driving power or stroke.

That others may fully understand the nature and construction of the said invention, reference will be had to the following specification and annexed drawings.

Figure 1. is a side view of the said invention; Fig. 2. a front view; Fig. 3. a top view of the strap; Fig. 4. a sectional interior view showing several important parts which are hereinafter described; Fig. 5. a longitudinal section on line x, x , Fig. 2. Figs. 6. and 7. (Plate 2) reduced in size, show the application of the mechanism to a sewing machine as an illustration of its practical operation, which may be adapted to other machines.

Like letters designate like parts in the drawings and specification.

The bifurcated links A. Figs. 1. 2. 5 and 7 are at their lower terminals provided with or in connection with the socket B. Figs. 1 and 2, with a bore B', by which the links A are hinged to the pivotal treadle Q Figs. 6 and 7. The upper terminals of the links A are screw threaded as shown at C Figs. 1 and 2. The strap D is provided with holes at its ends to receive the threaded ends C of the links. The strap rests upon the nuts E. E which are threaded upon the links. By means of the nuts the said strap may be raised or lowered the length of the screws on the links. Attached to the lower part of the links are ears or loops F. F' which have holes therein in which the ends of the belt are held by pins H or other fastenings. One part a of the belt G extends up to, and forms one turn around the loose pulley I Figs. 1, 2, 5, from which it passes upward to, diagonally over and through holes in the strap or plate D, thence the part b , descends to, and forms one turn around the loose pulley I', turning around on the opposite

side of the loose pulley I', thence to the fastening at the ear or loop F. The tension may be readily regulated by means of the nuts E. E. The holes in the plate D, for the reception of the threaded ends of the links are in a perpendicular line with the links, belt and ears.

The pulleys I I' are made to run loosely on the shaft J, and held in place by the movable collars J' fastened in place by set screws. Said pulleys are cupped out forming an annular space to fit over the disk and the devices shown in Fig. 5, as hereinafter further explained. The disk K is made fast to the shaft J. by the steel bushing K' or by other equivalent means. Each pulley is chambered out and fits loosely over the respective sides of the disk K, as seen in Fig. 5. Upon both sides of the disk K screwed or otherwise fastened to said disk are the plates L, Figs. 4 and 5, said plate being shaped as shown in Fig. 4. Each side or edge of the plate L, forms a straight line with an angular offset. Interposed between said edges and the inside rim of the pulley are rollers N. N and friction cams M. M, Figs. 4 and 5, the acute ends of the cams being separated by the rollers N. N. which are partially received in the slots M', M' in the said cams. The springs O Fig. 4. are preferably used to prevent too much movement of the friction cams, but are not absolutely essential for the practical operation of the invention. It will now be readily seen that, when the pulley I revolves in the direction of the arrow 1, Fig. 4, the cams M, M will move upon the rolls N, N and come in contact with the inside of the pulley rim. The cams M, M now act as a friction clutch and securely lock the pulley I to the shaft J, through the medium of the plate L and the disk K, above described. The shaft J revolves in the direction of the pulley I and constant motion is imparted to said shaft, by the pulley I', as soon as the motion of the pulley I is reversed, since the cams M, M will perform the same office in said pulley I' that they are now performing in the pulley I. When the pulley I revolves in the opposite direction to that indicated by the arrow 1, in Fig. 4, the cams M, M are carried away from the inside of the pulley rim, on the rolls N, N, and said pulley runs loosely on the shaft J. If my invention be attached to the shaft of

a machine as illustrated at J, Figs. 6 and 7 and the socket B of the links A, connected to the pivotal treadle Q, when said treadle is depressed it will draw the links A. A down
5 and revolve the pulley I loosely upon the shaft in the direction of the arrow 1, Fig. 1. At the same time the pulley I' will be revolved in the opposite direction noted by the arrow 2, Fig. 1 which also rotates the shaft J.
10 When the treadle raises the links, the pulley I will revolve in the direction of the arrow 2, Fig. 1, causing the shaft J to turn with it, and the pulley I' will rotate loosely on the shaft J. in the direction of the arrow 1 Fig. 1. Thus
15 so long as the links A. A. are moved up and the shaft will revolve in the direction of the arrow 2 Fig. 1, the links may be moved up or down from any point within the circumference of the radius over which the intersecting point of the treadle and link connection passes. By this means there can be no
20 dead center. The links may be steadied by one or more braces at R, Figs. 6 and 7.

The described construction and operation
25 for one pulley and its appended devices as

described are essentially the same as in the other. Each is substantially alike in arrangement, action and conjointly for the purpose described.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for converting motion the combination of the links A. A having their upper extremities screw threaded and provided with the ears F. F'. with the strap or
35 plate D, the nuts E, and the belt G, arranged substantially as and for the purpose set forth.

2. In a machine for converting motion, the shaft J and the disk K rigid thereon, in combination with two chambered pulleys, the
40 friction cams M. M, rolls N. N and the plate L attached to said disk substantially as set forth.

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

SEXTUS SLOAN.

Witnesses:

WALTER A. BIDDLE,
HENRY FORD.