

No. 877,346.

PATENTED JAN. 21, 1908.

J. E. LAGERGREN.
MOVING PICTURE MACHINE.
APPLICATION FILED NOV. 19, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

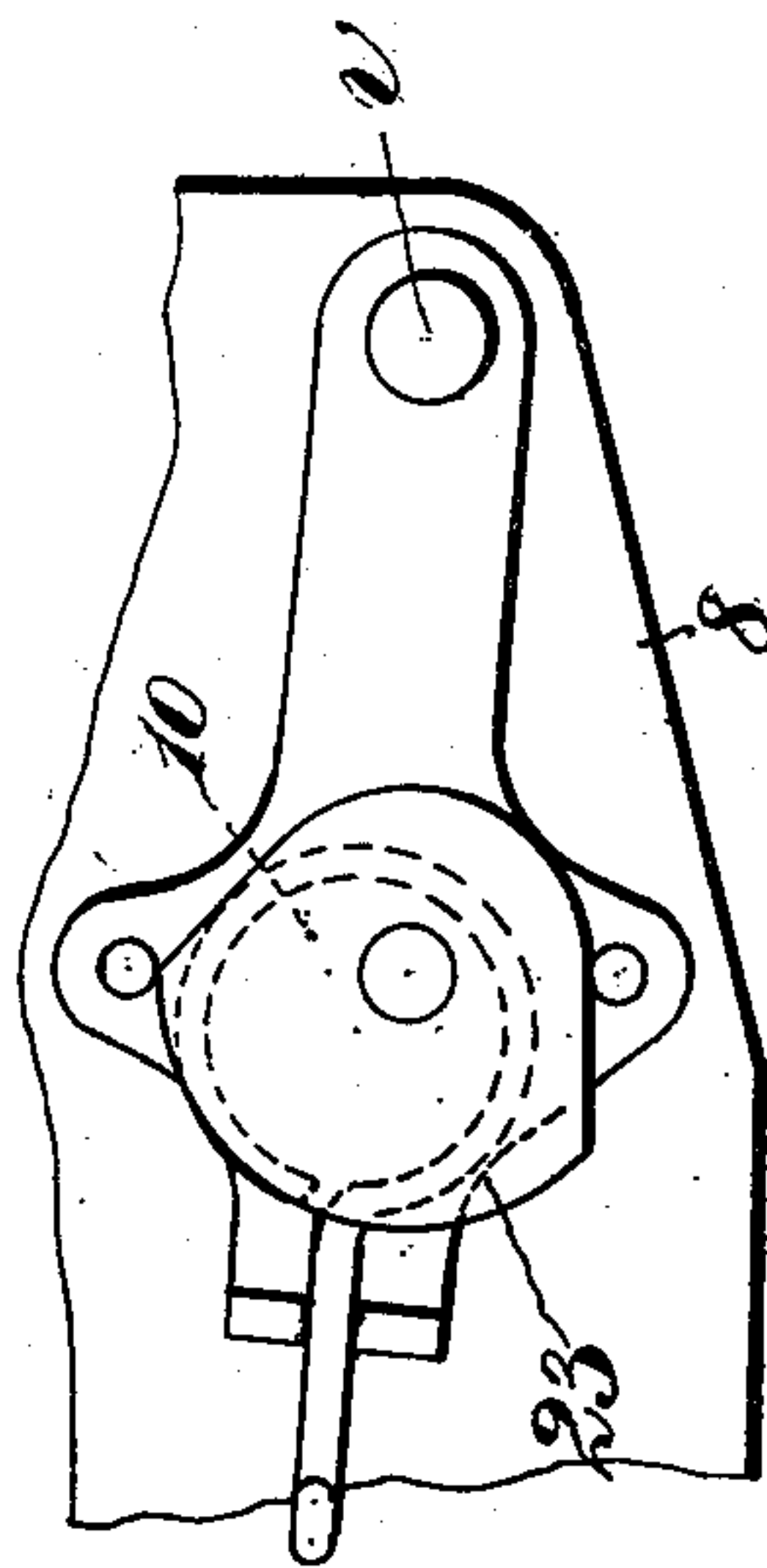
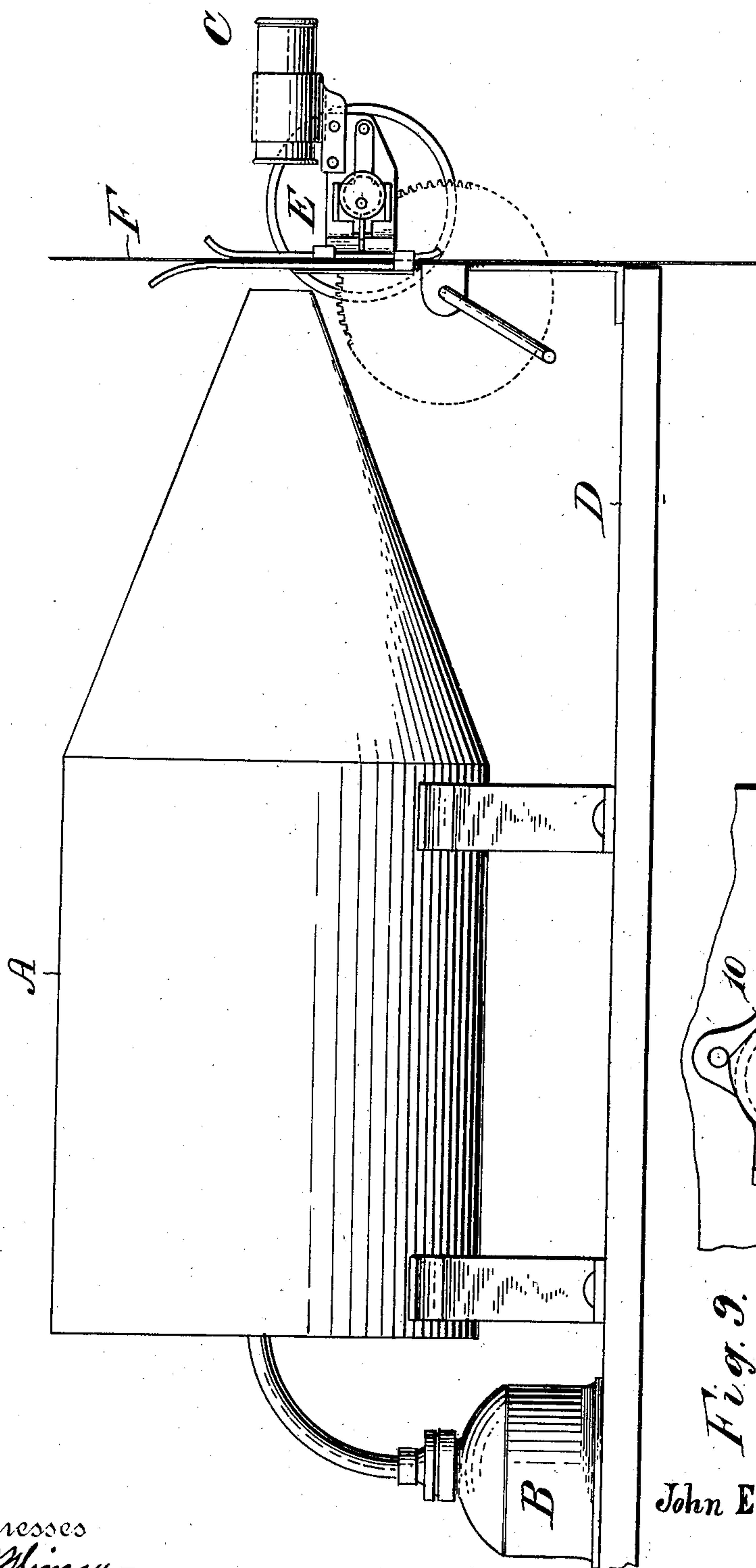


Fig. 2.

Witnesses
J. E. Lagergren
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By his Attorney

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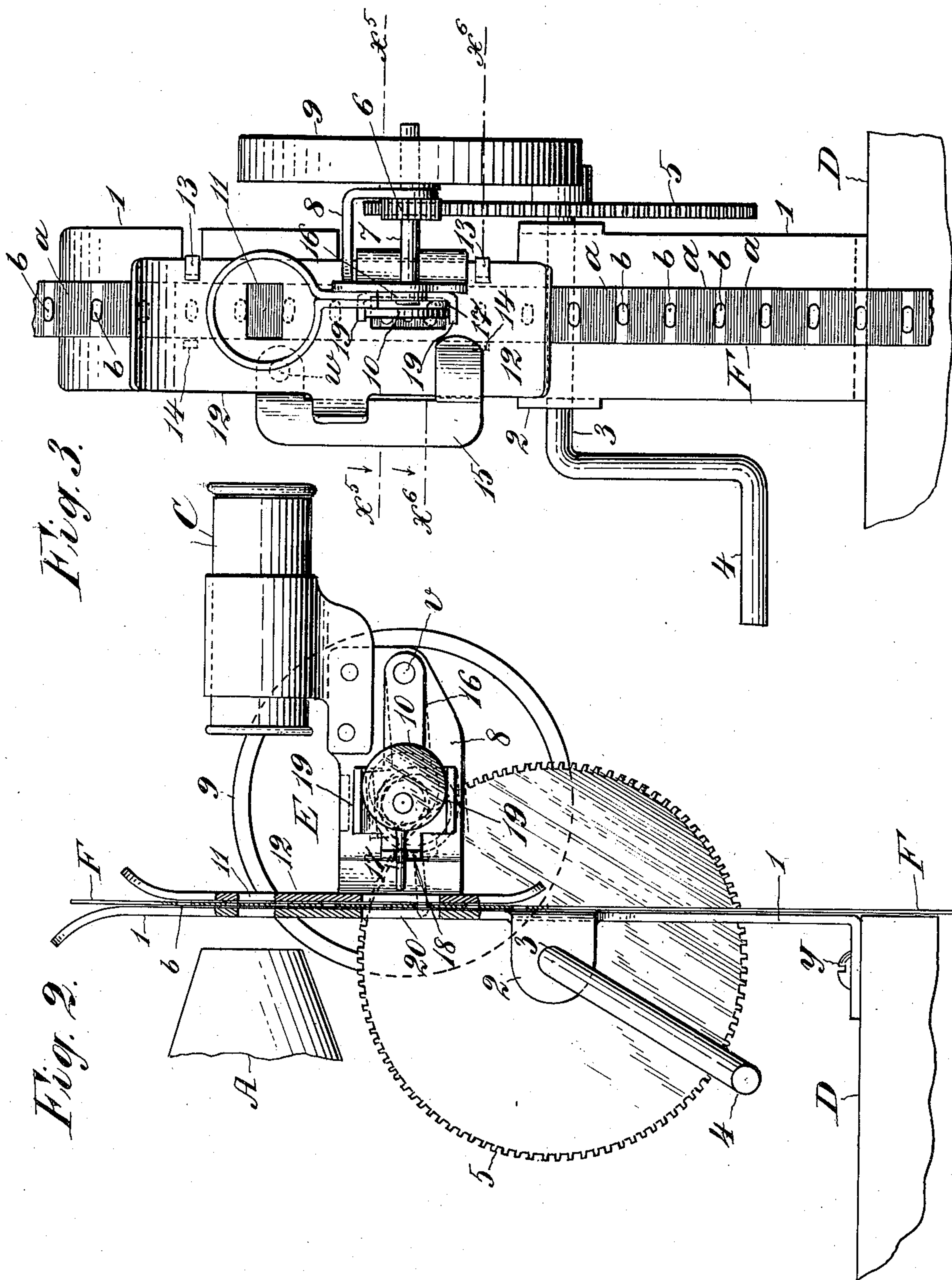
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3 SHEETS—SHEET 2.



Witnesses
E. H. Glinn
A. J. [unclear]

John E Lagergren
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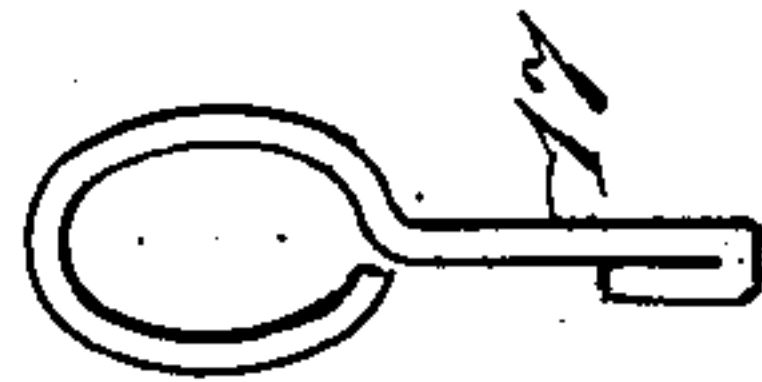
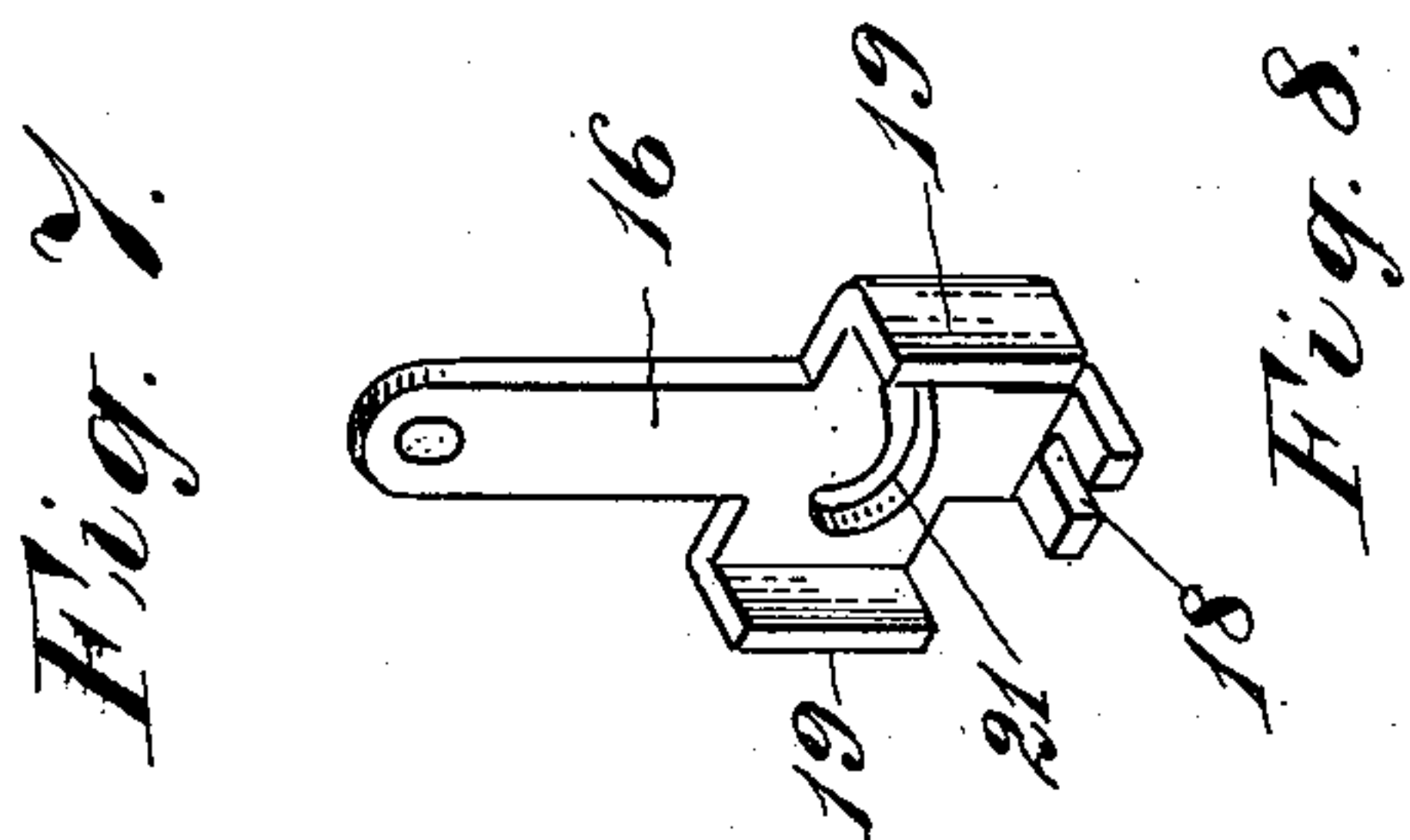
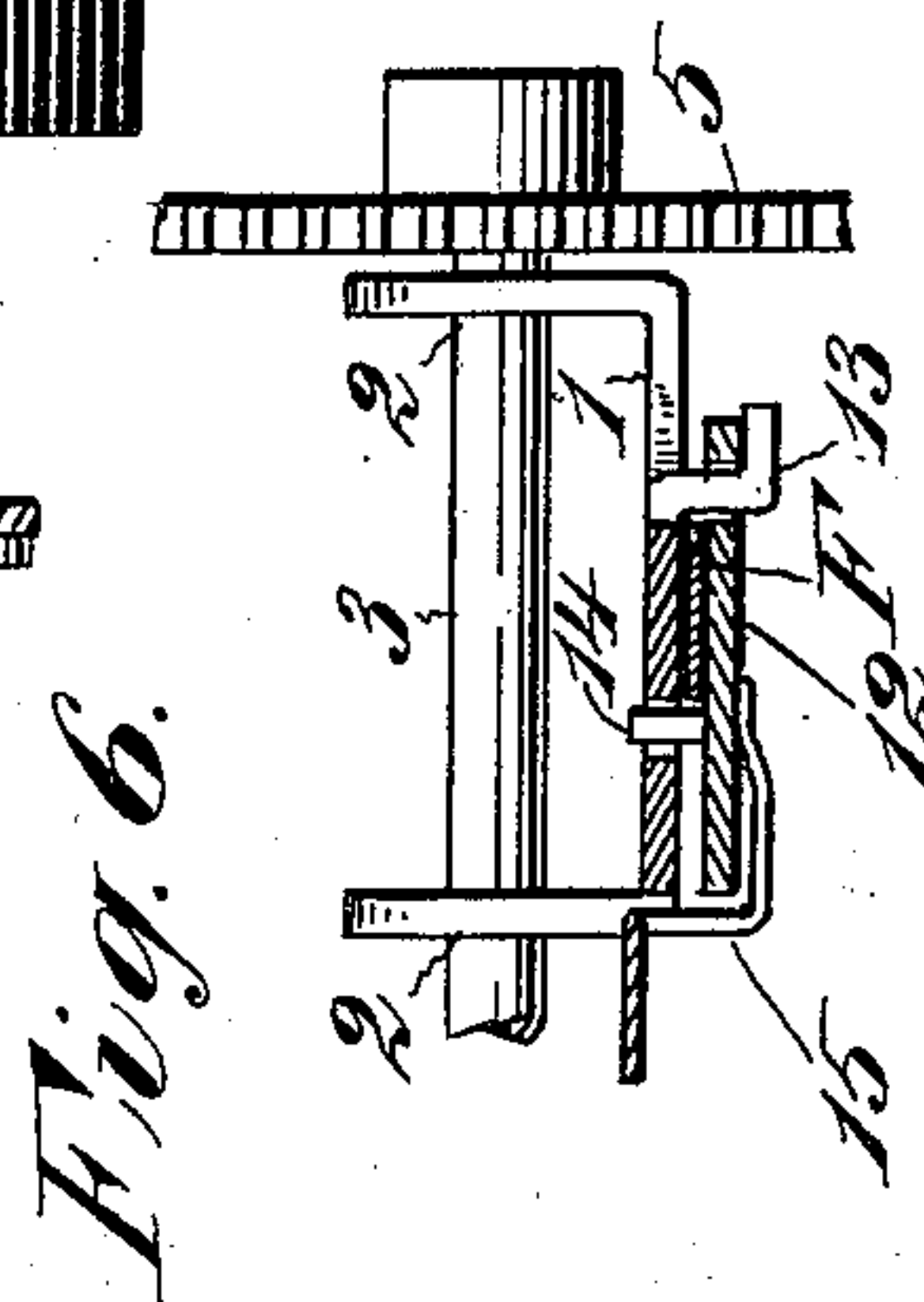
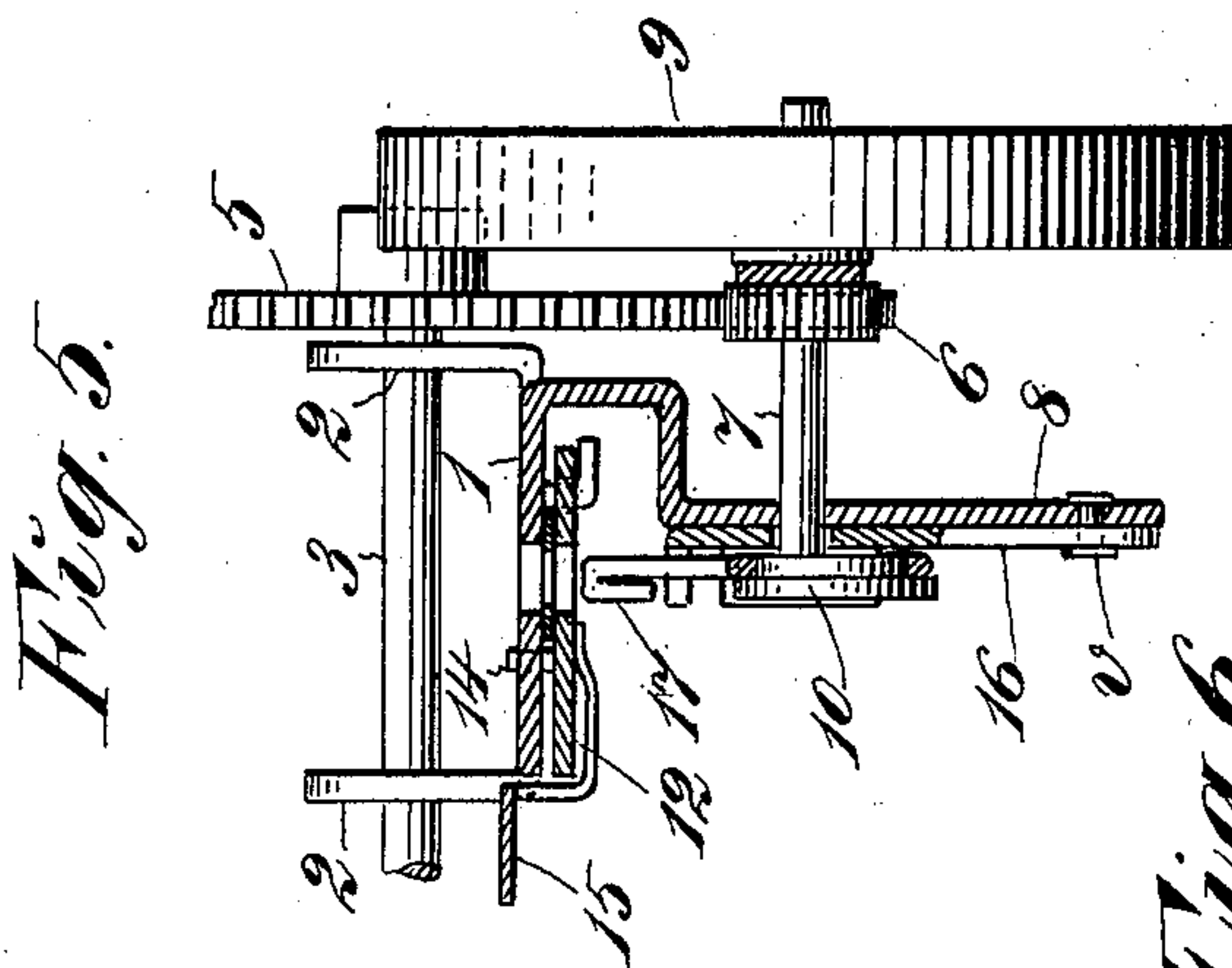
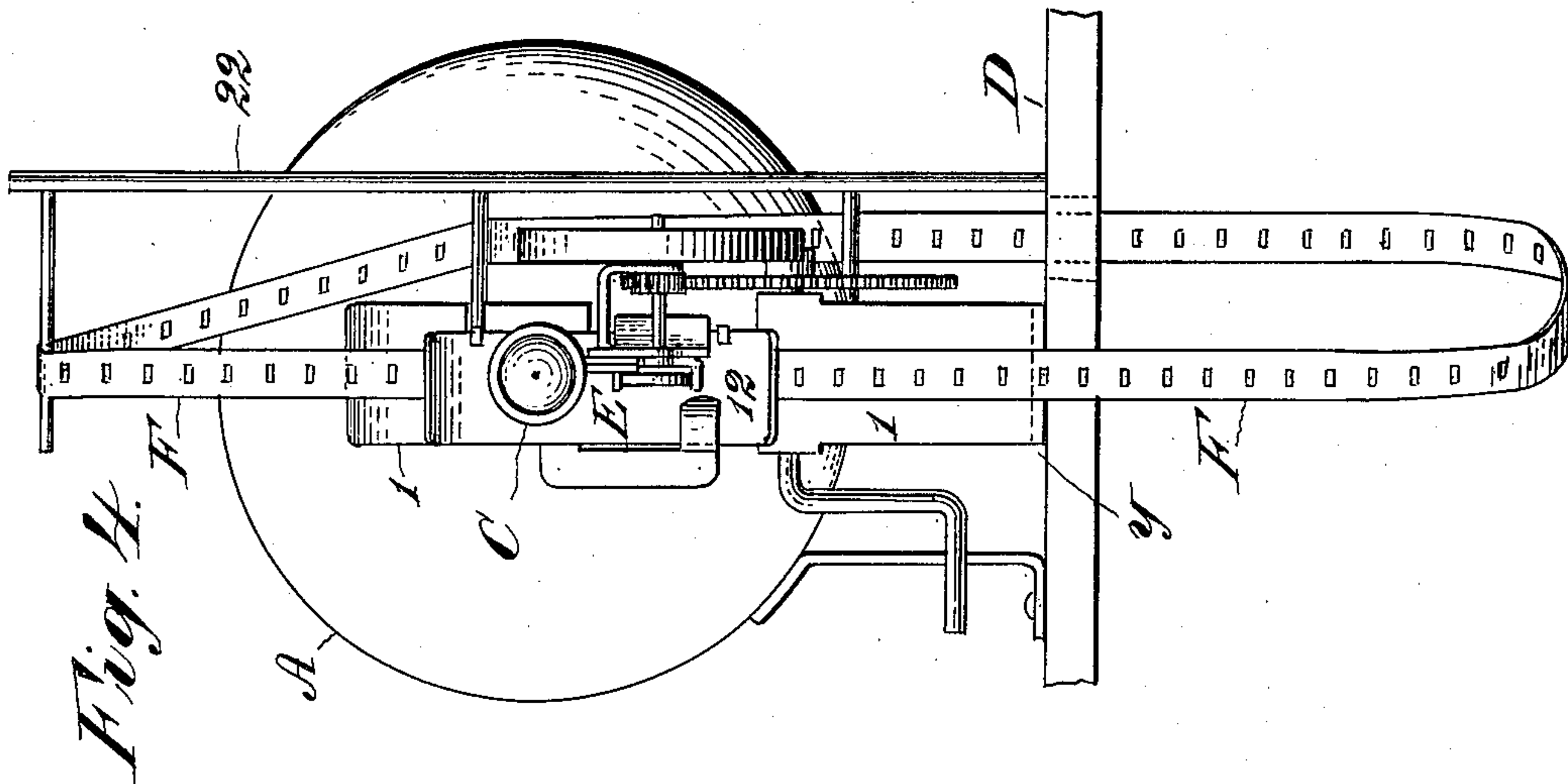
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3 SHEETS—SHEET 3.



Witnesses
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H. H. Gliman

John E. Lagergren
Inventor

By his Attorney Henry C. Bunnell

UNITED STATES PATENT OFFICE.

JOHN E. LAGERGREN, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE IKONOGRAPH COMPANY OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MOVING-PICTURE MACHINE.

No. 877,346.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed November 19, 1906. Serial No. 344,170.

To all whom it may concern:

Be it known that I, JOHN E. LAGERGREN, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Moving-Picture Machines, of which the following is a specification.

This invention relates to the class of moving picture machines or apparatus sometimes called a "biograph" or "kinematograph" apparatus. In this class of devices it may be briefly stated that there is a lamp, such as an acetylene lamp, a condenser containing a reflector and lens, a means for feeding a strip with pictures thereon, and projecting lenses for throwing the enlarged pictures on a screen. The present invention relates in the main to an improved means for feeding the strip of pictures intermittently, as will be hereinafter described.

The invention, as embodied in a hand-operated machine suitable for family use, is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the device on a relatively small scale. Figs. 2 and 3 illustrate the feeding device on a larger scale, the former being a side elevation, partly in section, and the latter a front view. Fig. 4 is a front elevation on the same scale as Fig. 1, showing the support for the endless strip of pictures. Figs. 5 and 6 are sections taken respectively at lines x^5 and x^6 in Fig. 3. Fig. 7 shows, detached, the device for vibrating the finger which shifts the strip. Fig. 8 shows the feeding finger detached. Fig. 9 shows a variant of the feeding device for the strip of pictures.

Referring to Fig. 1, particularly, A is the condenser, B the lamp, and C the projecting lens-device. These are known and may be of the usual or of any known construction.

D is a suitable table or support for the apparatus, designated as a whole by E, for feeding or moving the strip F of pictures. This feeding apparatus will now be described.

1 is an upright frame or support, preferably in the form of a strong plate of metal secured to the table D at y . In bearings 2 in the frame is mounted a main shaft 3, having on it a crank 4 and a gear-wheel 5. This is the operating shaft and crank, to be employed when the device is to be operated by

hand. The wheel 5 gears with a pinion 6, on a cam-shaft 7, mounted in a bracket 8 on the frame 1 at the front of the latter. This shaft 7 carries a fly-wheel 9; and in the principal views fixed on shaft 7 is an eccentric 10.

The strip F of pictures has the series of pictures a therein separated by a blank portion and in this portion is a feeding aperture b . The strip moves downward over the front of the plate forming the frame 1, and over a sight-aperture 11 therein, this latter being alined with the axes of the condenser A at the back, and the projecting lens-device C in front, and it is held in place and guided by a plate 12, hinged at 13 to the frame, at one edge thereof, and provided with studs 14, which pass through apertures in the plate of the frame 1. The plate 12 is held down yieldingly over the strip by means of an L-shaped spring 15, of spring metal, pivotally attached to the back of the frame at w and its shorter arm made to take over the plate 12 by turning about said pivot w .

The purpose of the feeder, now to be described, is to feed the strip F intermittently over the sight-aperture 11, allowing it to remain stationary for a moment thereat, and then quickly shifting the strip so as to bring the next succeeding picture into position at the said aperture. There should be about 20 exposures per second, and the shifting movement should, by preference, only occupy about one-eighth of the time employed in making each exposure, the picture being at rest at the sight-aperture about seven-eighths of the time occupied.

To effect the feeding movement, there is mounted on the bracket 8, at v , a vibratable or swinging guide 16, for a feeding finger 17. This finger is conveniently made from wire (see Fig. 8) and has a circular yoke to embrace the eccentric 10, and a stem carrying the finger 17. The stem plays in a slot or keeper-guide 18 in the swinging guide 16, and the latter has cheek-pieces 19 between which plays the larger section of the eccentric 10.

It may be explained here that the eccentric 10 has two disks, one a little larger than the other; the smaller disk is embraced by the yoke of the finger 17 and the larger disk by its contact with the cheeks 19, imparts a swinging or laterally vibrating movement to the device 16. Thus, when the shaft 7 is ro-

tated, the eccentric swings the finger 17 laterally and protrudes it into engagement with an aperture *b* in the strip of pictures *F*; then swings and feeds the strip to an extent sufficient to put the next succeeding picture into register with the sight-aperture; and then the finger withdraws and swings back again.

There is in the frame or plate 1 at the point where the finger 17 engages the aperture *b* in the strip *F*, an aperture 20 for the finger 17 to play in, and in Fig. 7 is seen a slot 21 for the shaft 7 to play in. In Fig. 4 is seen a supporting device 22 for the endless strip *F*, of pictures. This support may be of any kind.

15 An eccentric, as shown in the principal figures, may be employed to operate the feeding finger 17 and swinging guide 16; but it is preferred to employ the cam-device seen in Fig. 9, in order to get a quicker movement of the finger 17 in feeding the strip *F*. In this figure it will be seen that the larger plate or disk of the eccentric 10 is substituted by a cam 23, which acts on pins or cheeks on the device 16 to impart a quick swinging movement to said device, while the protrusion and withdrawal of the finger 17 is effected more slowly by the smaller eccentric as before. Preferably the cam will be so shaped as to effect the feeding or shifting, moving within one-eighth of the complete rotation of the shaft 7.

The placing of the feeding apertures in the center of the strip *F*, is preferred where the strip is narrow, and in that case only one finger 17 is required; but it will be obvious, without the need of illustration, that there could be two holes at the sides of the strip and two feeding fingers on the same stem to engage the said holes.

Having thus described my invention, I claim—

1. A moving picture machine, having a holder and guide for the strip of pictures, the said strip, provided with feeding apertures, and mechanism for intermittently feeding said strip, said mechanism comprising a rotating cam-shaft, an eccentric thereon, a feeding finger to engage the feeding apertures in the strip of pictures, said finger having a yoke which embraces the eccentric, a laterally vibratable guide provided with a keeper guideway for the finger, and means on the cam-shaft for engaging and vibrating said guide, the eccentric serving to protrude and withdraw the feeding finger, and the vibrating guide serving to impart the to and fro feeding movement thereto.

2. A moving picture machine, having a holder and guide for a strip of pictures, the said strip having in it feeding apertures, and mechanism for feeding the strip of pictures in an intermittent manner, said mechanism comprising a rotating cam-shaft, an eccentric thereon, a feeding finger having a yoke which embraces said eccentric, a vibratable guide 16, having a keeper-guideway in which plays the stem of said finger, and a cam on said shaft which engages parts of the guide 16 on opposite sides and imparts an irregular movement to said guide.

In witness whereof I have hereunto signed my name this 1st day of November, 1906, in the presence of two subscribing witnesses.

JOHN E. LAGERGREN.

Witnesses:

HENRY CONNETT,
WILLIAM J. FIRTH.