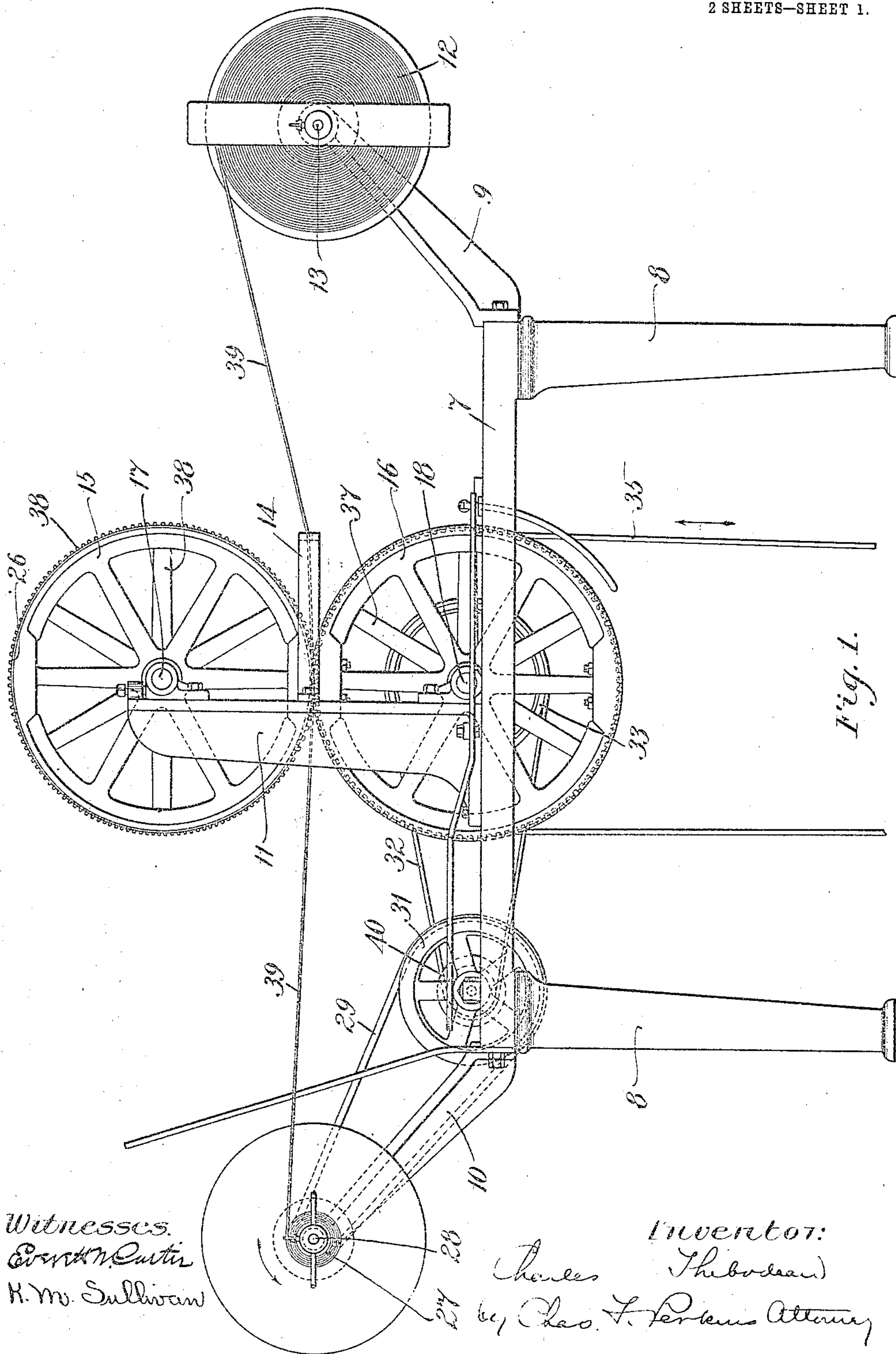


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 APPARATUS FOR SCORING TAPE.
 APPLICATION FILED SEPT. 25, 1907.

936,383.

Patented Oct. 12, 1909.

2 SHEETS—SHEET 1.



Witnesses.
 Everett N. Curtis
 H. W. Sullivan

Inventor:
 Charles Thibodeau
 by Chas. F. Perkins Attorney

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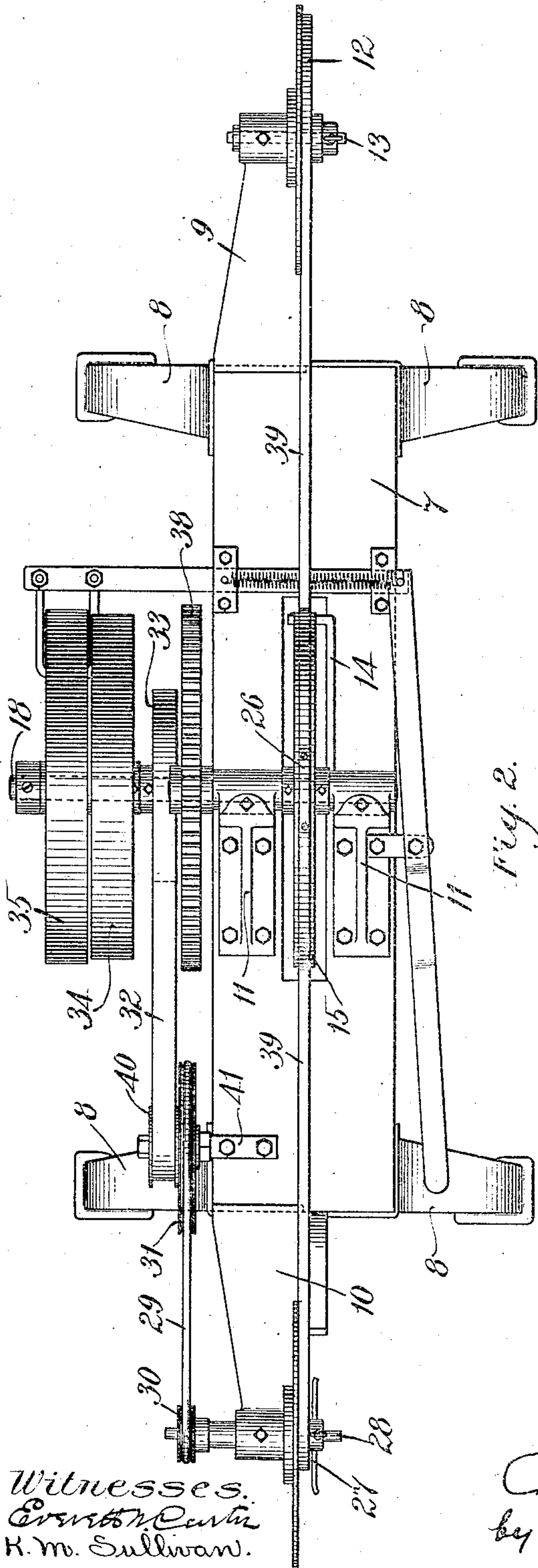


Fig. 2.

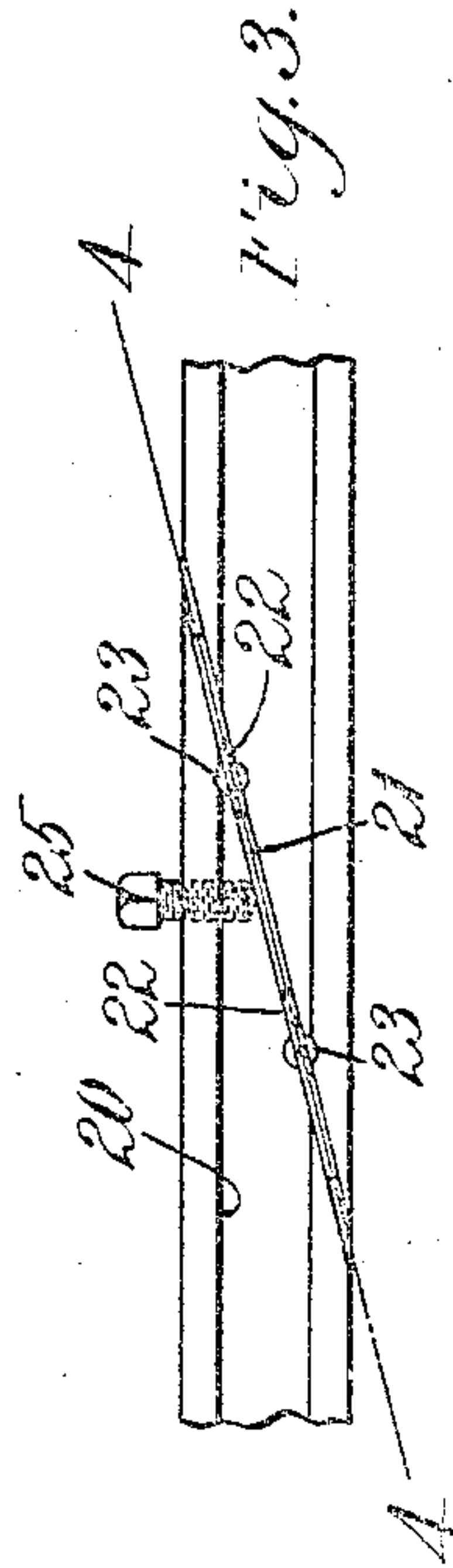


Fig. 3.

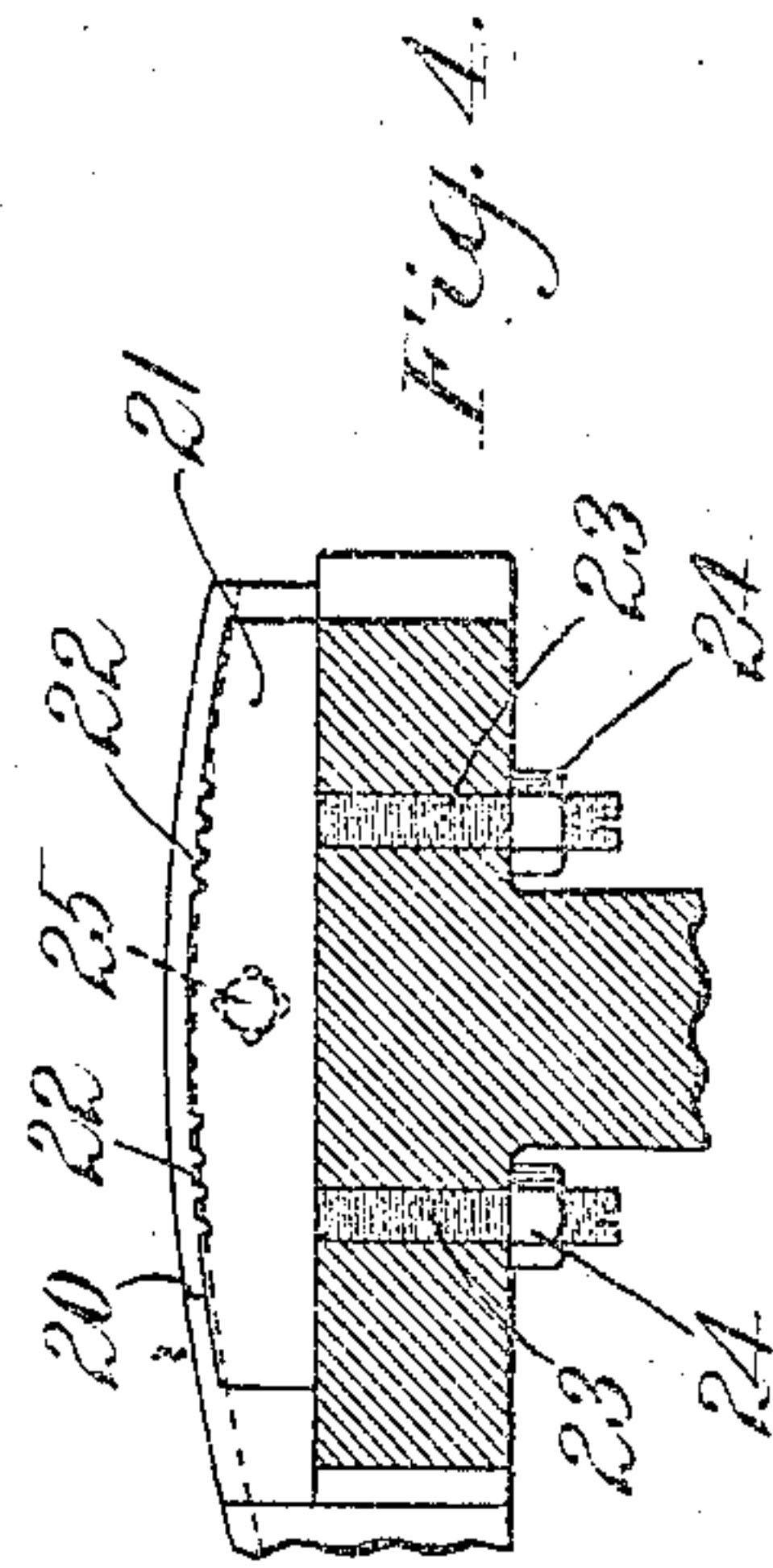


Fig. 4.



Fig. 5.

Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES THIBODEAU, OF CHELSEA, MASSACHUSETTS, ASSIGNOR TO AMERICAN CIRCULAR LOOM COMPANY, OF CHELSEA, MASSACHUSETTS, A CORPORATION OF MAINE.

APPARATUS FOR SCORING TAPE.

936,383

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed September 25, 1907. Serial No. 394,491.

To all whom it may concern:

Be it known that I, CHARLES THIBODEAU, a citizen of the United States, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Apparatus for Scoring Tape, of which the following is a specification.

My invention relates to an improvement in machines for scoring or cutting tape or strips of paper fiber or similar material for the purpose of weakening the tape or strips at intervals.

My improvement consists first in locating a knife in the periphery of a roll so that its edge lies obliquely to a plane perpendicular to the axis of the roll, secondly in providing knives of such shape that they will leave portions of the tape or strips of material near each edge intact and uncut, and thirdly in providing a means for the easy and ready insertion, removal and adjustment of said knives.

It further consists in the improvements hereinafter specifically described and claimed.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of my entire machine. Fig. 2 is a plan view of my machine. Fig. 3 is an enlarged plan view of one of the knives and a portion of the roll to which it is attached. Fig. 4 is an enlarged view on line 4—4 of Fig. 3, showing one of the knives in elevation and a portion of the roll in section. Fig. 5 is a section of tape or strip of material showing it weakened by being scored or cut after passing through my machine.

Similar numbers refer to similar parts throughout the several views.

The bed-plate 7, its legs 8, the arms 9 and 10 secured to either end of bed-plate 7 by bolts or other suitable means and the standards 11 attached to the said bed-plate 7 between the arms 9 and 10 constitute the frame of the machine. The unscored tape is wound on a spool 12 on a shaft 13 which is journaled in the arm 9. The tape 39 on being unwound from spool 12 passes through the guide 14 which is attached to one of the standards 11, and between the rolls 15 and 16 on shafts 17 and 18 respectively. Shaft 17 is journaled in bearings secured to the upper ends of standards 11 and shaft 18 is

journaled in bearings secured to the lower ends thereof. Gear 37 is secured to shaft 18 and meshes with gear 38 on a shaft 17 for the purpose of driving the rolls 15 and 16 in opposite directions. The roll 16 is provided with an annular groove 20 which is made slightly wider than the tape or material to be operated upon so as to avoid binding.

The knives 21 are secured in slits or narrow openings in the rim of the roll 16, which extend at an acute angle to a plane passing through the roll perpendicular to its axis. The said knives are provided near each end thereof with teeth 22, the middle portion of said cutting edge being straight away and free from teeth, and the notches between such teeth being below the plane of the top central portion of the cutting edges of said knives which are not toothed. The knives 21 are adjusted in the slits or openings provided for them as above set forth by means of adjusting screws 23 which pass through holes in the rim of roll 16 and are secured by the lock nuts 24. Knives 21 are secured in their openings by means of set screws 25 which bear against said knives 21 holding them firmly in place.

The periphery of roll 15 is provided with plates or strips 26 which are slightly narrower and less in depth than the groove 20 and are so placed as to fit into groove 20 opposite the knives and serve to press and hold the tape or strip of material firmly against said knives. These strips 26 are made preferably of brass or some other material so soft as not to dull the edges of knives 21. The strip of material after passing between the rolls 15 and 16 and being scored or cut as above set forth is wound upon a spool 27 on a shaft 28 which revolves in a bearing in the end of arm 10 and is positively revolved by means of a belt 29 which passes over a pulley 30 secured to the shaft 28 and thence over pulley 31 which revolves on an axle 41 attached to plate 7. On axle 41 is a pulley 40 which is connected by belt 32 with pulley 33 which is secured to shaft 18. Shaft 18 is driven by means of pulley 34 which is connected by a belt 35 with the source of power.

The operation of my machine is as follows:—A full spool 12 of tape or strip of material is fixed to the shaft 13. The tape is then unwound and the end of it passed through the guide 14 and between the rolls

15 and 16 and secured to the shank of the empty spool 27. The machine is then started. The gear 37 and the roll 16 are positively driven and the gear 37 causes the gear 38 and also roll 15 to revolve in the opposite direction. This causes the tape to move between the rolls 15 and 16 and to be scored at intervals by knives 21 and to unwind from the spool 12. The spool 27 being positively driven causes the scored tape to wind up on it as fast as it passes between the rolls. This operation is continued until the spool 12 is empty and the spool 27 full. The spools are then removed and the operation begun over again with new spools.

The purpose for which the tape is cut or scored is to weaken it at intervals so that it will separate when a given amount of tension is exerted upon it. The knife is constructed in the manner described so that it will not cut the tape entirely from edge to edge but will leave the material uncut at points on and near the edges of the tape in order to prevent it from splitting and also from separating too readily when tension is exerted, the purpose of the machine being to prepare the material for the construction of the tube which forms the subject matter of the invention described in Letters Patent of the United States, numbered 825,227, dated July 3rd, 1906, issued to George A. Lutz and Clarence C. Sibley.

The form of the impression made by the cutting device is a diagonal incision nearly across the tape caused by the straight cutting edge, and several slight punctures in the tape near both edges and in line with said incision produced by the teeth.

Having thus described my invention, what

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

1. In a machine for scoring or cutting tape or strips of material the combination of a roll carrying upon its periphery a knife located at an acute angle to a plane projected at right angles to the axis of the roll, means for guiding the tape centrally over the periphery of the roll, means for exerting pressure upon said knife edge, and means whereby the edges of the tape are left unsevered.

2. In a machine for scoring or cutting tape or strips of material the combination of a pair of rolls rotating in opposite directions, a knife located in the periphery of one of them set at an acute angle to a plane at right angles to its axis, said knife being formed to leave the edge portions of the tape unsevered, and means for accurately guiding the tape to prevent lateral movement thereof.

3. In a machine for scoring or cutting tape or strips of material the combination of a pair of rolls rotating in opposite directions, a knife located in the periphery of one of them set at an acute angle to a plane at right angles to its axis, said knife being formed to leave the edge portions of the tape unsevered, supplying and winding reels in alignment with said rolls, and means for accurately guiding the tape to prevent lateral movement thereof.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses, this fourth day of September 1907.

CHARLES THIBODEAU.

Witnesses:

J. BUTLER STUDLEY,
EVERETT N. CURTIS.