

No. 803,393.

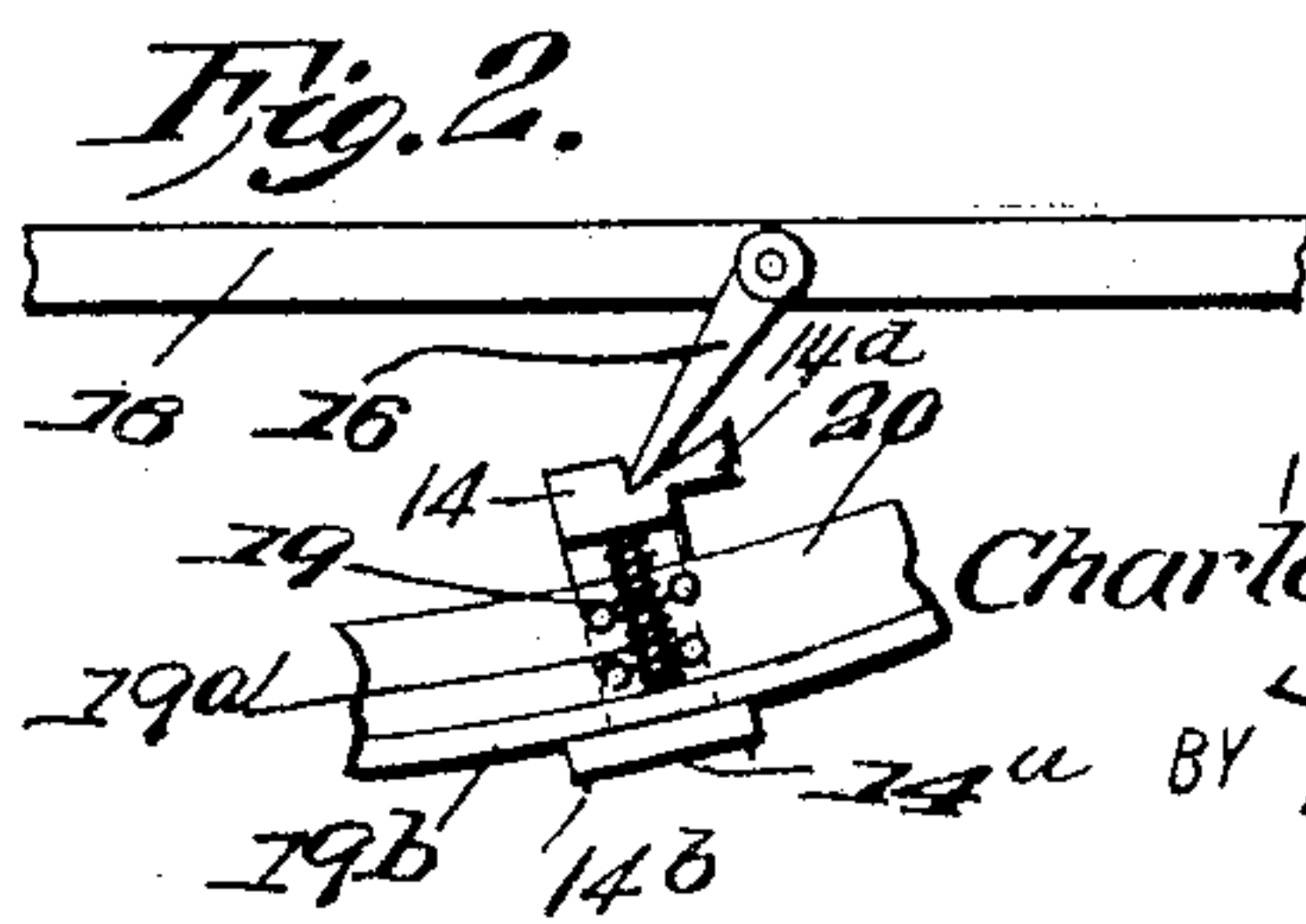
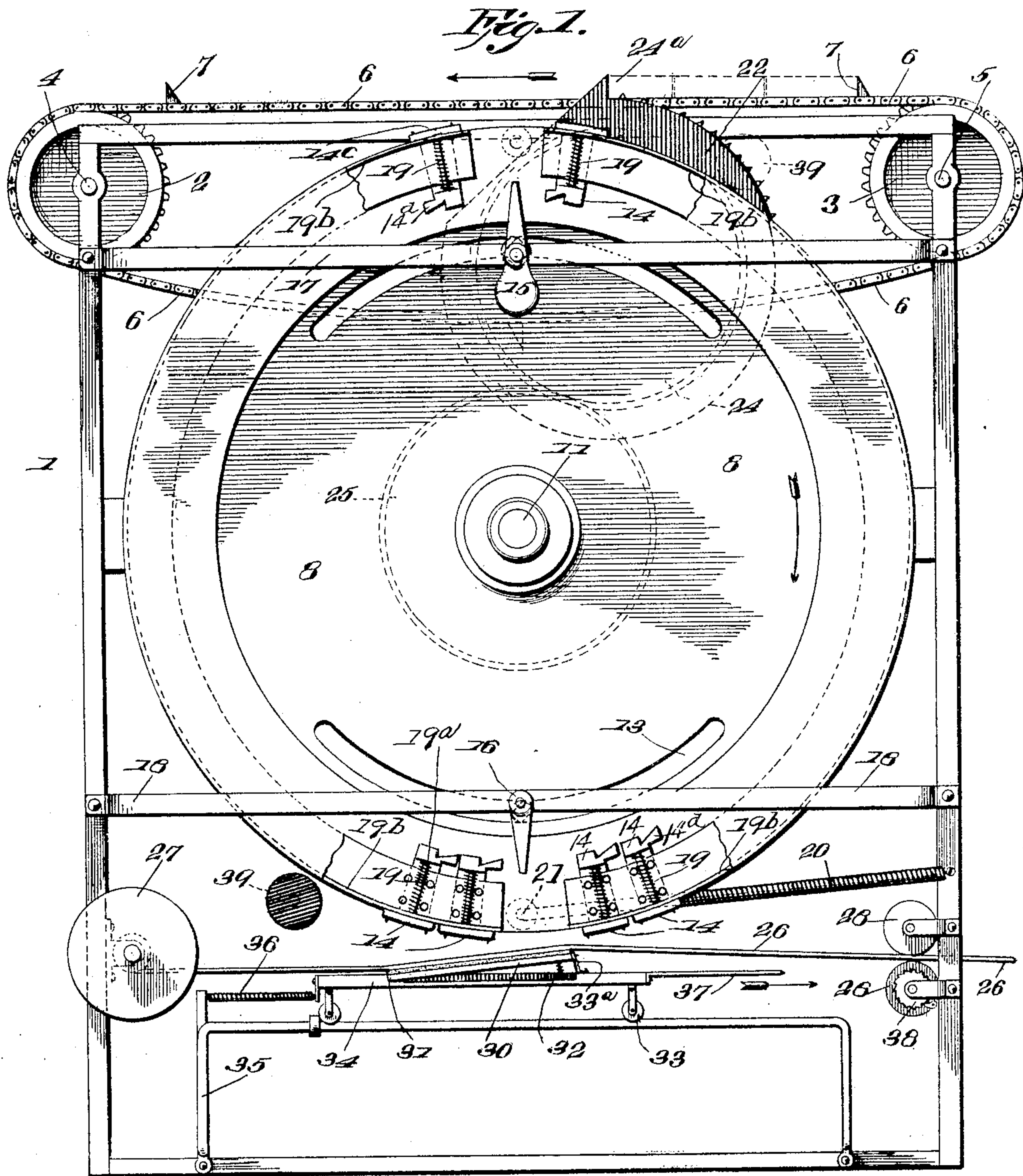
PATENTED OCT. 31, 1905.

C. G. BLADES.

LUMBER MEASURER, MARKER, AND RECORDER.

APPLICATION FILED FEB. 2, 1905.

2 SHEETS—SHEET 1.



WITNESSES;
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Anne W Hart

INVENTOR
Charles G. Blades.

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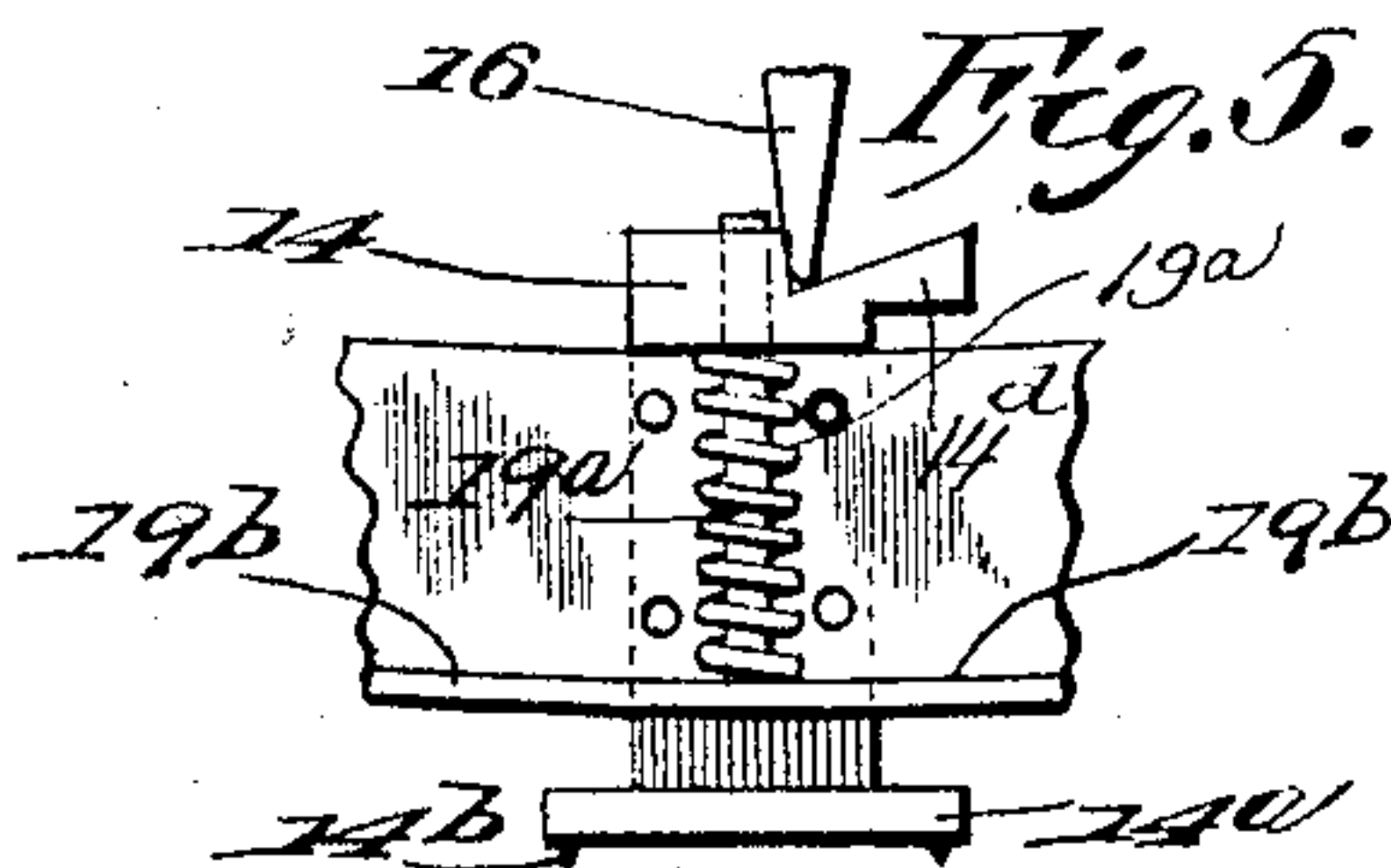
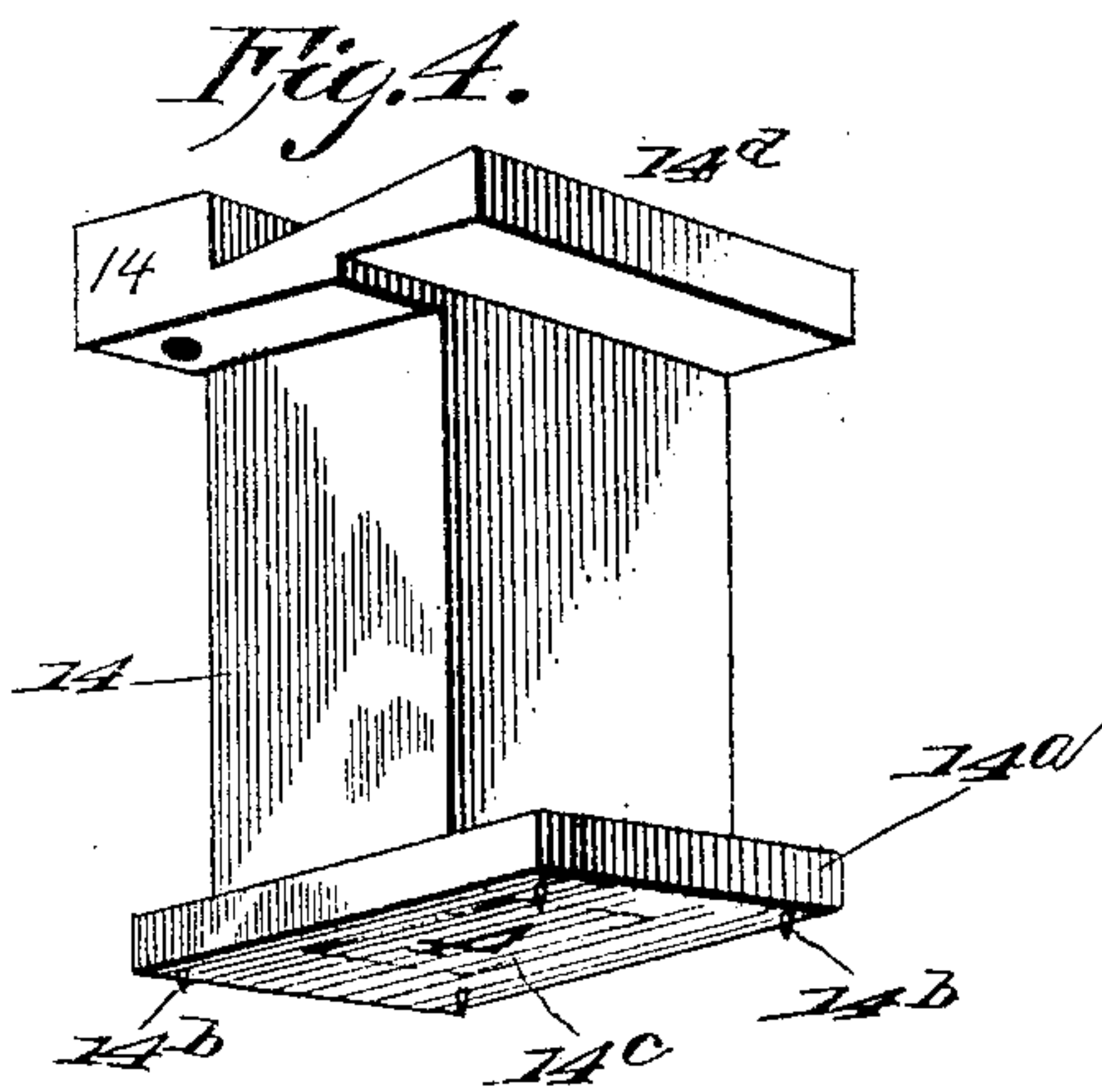
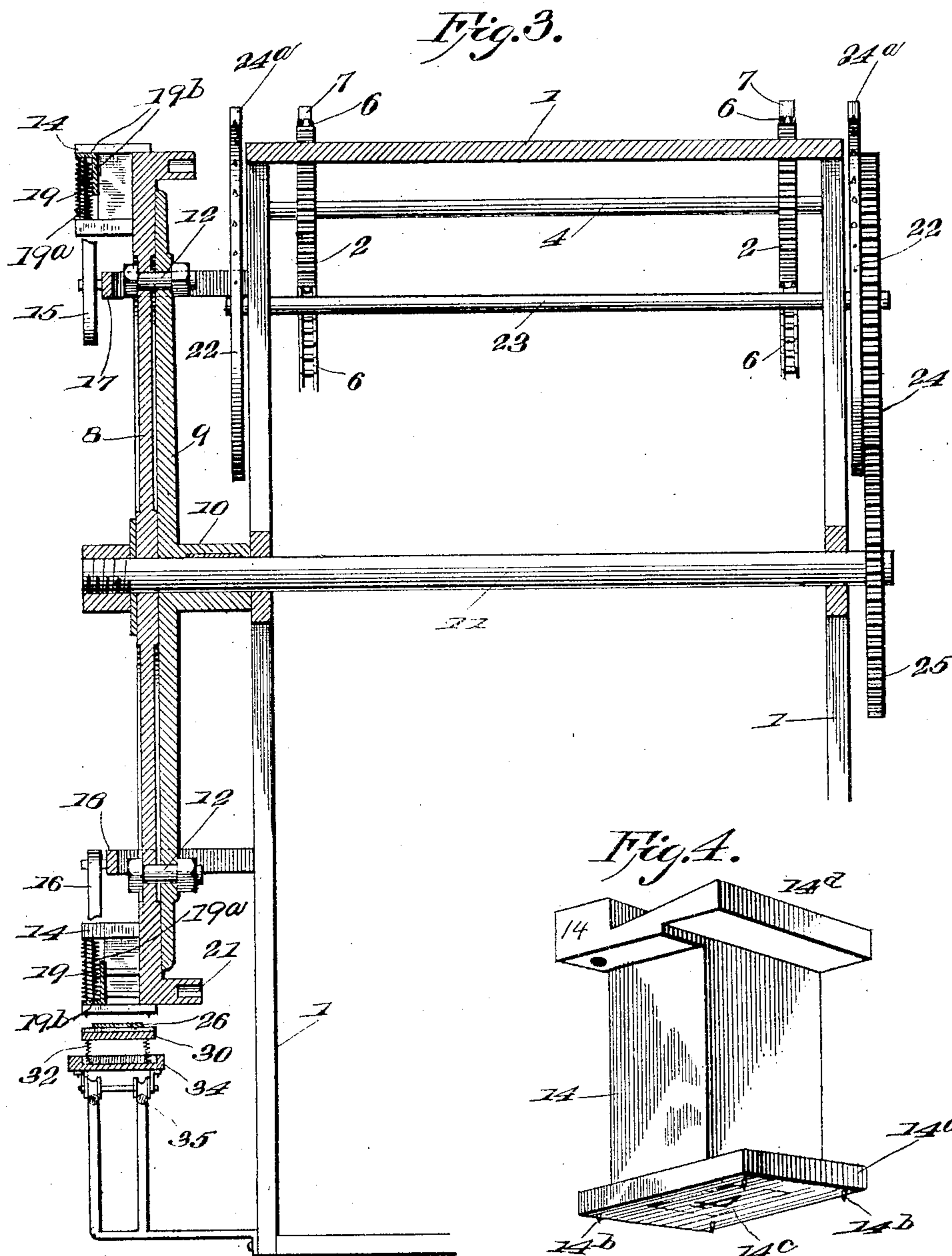
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UNITED STATES PATENT OFFICE.

CHARLES G. BLADES, OF NEWBERN, NORTH CAROLINA.

LUMBER MEASURER, MARKER, AND RECORDER.

No. 803,393.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed February 2, 1905. Serial No. 243,827.

To all whom it may concern:

Be it known that I, CHARLES G. BLADES, a citizen of the United States, residing at Newbern, in the county of Craven and State of North Carolina, have made certain new and useful Improvements in Lumber Measurers, Markers, and Recorders, of which the following is a specification.

It is the object of my invention to provide a simple and reliable apparatus for automatically measuring the superficial area of boards or other lumber having a flat face and for recording and marking the number of square feet thus ascertained both upon the lumber itself and upon a band or tape which is fed or caused to travel corresponding to the aggregate width of the boards measured.

The details of construction, combination, and operation of parts composing the apparatus are as follows, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a detail view illustrating the operation of certain parts of the apparatus. Fig. 3 is a central vertical transverse section of the apparatus. Fig. 4 is a perspective view of one of the type or type-carriers by which the printing is effected. Fig. 5 is a detail view illustrating the operation of the types or printing media.

The movable parts of the apparatus are arranged in and attached to a skeleton rectangular frame 1. At the upper four corners of the frame are arranged sprocket-wheels 2 and 3, the wheels 2 being spaced apart and mounted upon the transverse shaft 4, having its bearings in uprights of the frame, and the wheels 3 being similarly arranged on a shaft 5 on the opposite side of the frame. Chains 6 run on the two pairs of sprocket-wheels thus arranged, and the same are provided with teeth 7 for engaging and pushing along boards or other flat lumber which may be laid upon the chains, as indicated by dotted lines, Fig. 1. It will be understood that the shaft is driven positively by any suitable motor. Thus the upper bights of the chain move toward the wheels 2, as indicated by arrow, Fig. 1.

A large type-carrying disk or wheel 8 is arranged in a vertical plane on one side of the frame 1 and parallel to a disk 9, having a hub 10, (see Fig. 3,) which is keyed upon a horizontal shaft 11. The type-carrier 8 is of greater diameter than the disk 9 and is secured thereto by means of screw-bolts 12, which pass through slots 13 in the type-carrier, whereby

the latter is adapted for adjustment around the shaft 11, as may be required to set it in proper position for work. As shown, the types 14 (see Fig. 4 for illustration of details of construction) are arranged on the periphery of the wheel 8 and in two divisions—that is to say, the wheel is provided at top and bottom with spaces that intervene the two sets or divisions of types 14.

For coacting with the type I employ devices which may be termed “push-pawls,” the same being indicated by the numerals 15 and 16 and pivoted, respectively, at the centers of the horizontal bars 17 and 18 of the frame. The upper push-pawl 15 is weighted in order to hold it vertical, so that the point thereof is normally directly opposite the upper space of the wheel, while the lower pawl 16 hangs by gravity in similar relation to the lower space of the wheel. The types 14 are each composed or formed of a rectangular body having an outer flanged head 14^a, provided with teeth 14^b and carrying numerals 14^c, which project from the face of the head and are thus adapted to print. The opposite or inner heads of the types are also flanged and provided with a notch 14^d, which is adapted to receive the point of either of the push-pawls 15 and 16. It will be observed that the notch has a shoulder which is parallel to a radius of the wheel 8, while the other side of the notch extends laterally therefrom and to a greater length. The several types are arranged and adapted to slide radially and are held normally retracted with the flanged outer head 14^a in contact with the periphery of the wheel 8 by means of spiral springs 19, which are applied to rods 19^a, whose outer ends are fixed in the annular flange 19^b, attached to and forming a fixed attachment of the periphery of the wheel. As will be seen, the inner ends of the said rods are adapted to slide in openings formed in the inner flanged heads 14^d of the types. (See Figs. 4 and 5.) Thus the said rods and the opposed inner sides of wheel 8 and the annular flange 19^b form guides for the types on and between which they slide radially. A spiral spring 20 (see Fig. 1) is secured at one end to the frame 1 and at the other to a lug or arm 21, (see Fig. 3,) that projects inward from the periphery of the wheel 8. By this means the wheel 8, which moves in the direction of the hands of a clock, (see arrow, Fig. 1,) is always retracted after the passage of a board or other piece of lumber over the top thereof.

For operating the type-carrier 8 I employ the following means: Two spurred disks or wheels 22 are mounted upon a horizontal shaft 23, arranged in the upper portion of the frame 1 and at the right of the center thereof. (See Fig. 1.) These wheels are provided with teeth 24^a, which project above the upper bights of the chains 6 and are thus adapted to come in contact with boards laid upon and carried along by the chains and insure a positive starting-point for the wheels 22. As shown in Fig. 3, one of the toothed wheels 22 is arranged between the frame and the type-carrier 8, while the other is arranged exterior to the frame on the opposite side thereof. For operatively connecting the toothed wheels 22 with the type-carrier 8, so that the latter will be correspondingly rotated, I employ toothed or spur gears 24 and 25. (See Fig. 3.) The gear 24 is mounted on the shaft 23 and the gear 25 on the type-carrier shaft 11. It will now be apparent that the chains 6 being caused to travel and boards being laid thereon the teeth 7 of the chains will force the boards forward against the teeth 24^a of the wheels 22 and the latter will be rotated so long as boards are wide enough to engage them, and thus in turn impart rotation to the type-carrier 8 in the opposite direction, as indicated by arrows, Fig. 1. As soon as the contact between the boards and wheels 22 is released by the forward travel of the boards the coil-spring 20 retracts the type-wheel 8 and brings pawls 15 and 16 into contact with certain types. Thus when the type-carrier is rotated the pawl 15 rides over types on the left-hand side of the wheel 8 while the point of lower pawl 16 similarly rides over types on the right of the said wheel, and when the wheel 8 retracts said pawls lock with diametrically opposite types, (see Figs. 2 and 5,) since it is obvious that a narrow board will rotate the said wheels 22 a less distance than a broader one, and consequently the pawls will sweep over a greater or less number of type correspondingly before retraction takes place and the pawls lock certain types.

It will be understood that the boards are always laid upon the chains 6 in such manner that they project on the front side of the machine or at the left, as shown in Fig. 3, over the periphery of the type-carrier 8, so that the types may print on the under side thereof. When the wheel 8 has been rotated a greater or less distance and the board has been released from the toothed wheels 22, the spring 20 retracts the type-carrier 8, and in so doing the points of the pawls are caused to engage the types which are diametrically opposite on the periphery of the carrier. Thus in the case of the upper pawl 15 its point engages a type and pushes it outward, so that it is caused to print on the under side of the board which has just passed over the wheels 22, and the

lower pawl 16 will similarly engage a type 65 and push it outward.

As will be understood by reference to Fig. 5, the pawl 16 pushes a type outward to the fullest extent when the said type has been brought into vertical alinement with it, the point of the pawl at such time resting in the notch of the type and in contact with the shoulder thereof. Thus the type is caused to print upon a tape 26, which is unrolled from a reel 27 (see Fig. 1) and passes between elastic feed-rolls 28, the latter being located on the side of the frame 1 opposite the reel 27. The tape passes over a pad 30, which is hinged at one end 31 and supported at the other end by a spiral or other spring 32, the rise of its free end being limited by a strap 33^a. The teeth 14^b of each of the types 14 are spaced apart farther than the width of the tape 26, as will be seen by reference to Fig. 2, and consequently the teeth do not come in contact with the tape, while the raised numbers thereon are free to do so. The pad is an attachment of a car or carriage 34, whose wheels run upon horizontal supports or tracks 35. A spiral spring 36 serves to retract the carriage, and its opposite end is provided with a push-pawl 37, which engages a ratchet-wheel 38, that is fast on the axis of the lower feed-rolls 28.

When the type-carrier 8 is rotated in the direction of the arrow, Fig. 1, the types pass over the cushion 30 that contact therewith; but when the type-carrier is released and retracted by the spring 20 the particular type which is projected from the periphery by contact with the push-pawl 16 will engage the pad, and thus move the carriage 34 to the right, as indicated by arrow, Fig. 1, so that the pawl 37 will come in contact with the ratchet 38, and thereby cause rotation of the feed-rolls 28, and consequently feed the tape or draw it off from the reel 27. By this means the tape is fed a short distance each time a board passes over the upper toothed wheel 22 and each time that the types on opposite sides of the wheel are projected for printing. The types will in practice be inked by any suitable means. In Fig. 1 I indicate at 39 by dotted lines the location of inking-rollers adapted to come in contact with the types and to ink the same.

It will be understood that each particular apparatus will be organized for measuring and recording the measurement of boards of a particular or definite length. Thus if the boards are sixteen feet long the types 14 will carry numbers corresponding. Thus assuming the minimum width of boards to be one foot, then a board sixteen feet long would contain sixteen square feet, superficial measure, and the first type at the right of the upper push-pawl 15 and at the left of the lower pawl 16 would consequently carry the number "16," and the other succeeding types will be numbered cor-

respondingly to express different numbers of square feet.

Spur-gears 24 and 25 may be quickly removed and substituted by other spur-gears suitable to rotate type-wheel 8 at a rate relative to friction or spur wheels 22 sufficient to measure and record square feet, superficial measure, of boards of any length.

It will be seen that by means of my improved apparatus I am enabled to print upon the lumber itself and also upon a traveling tape simultaneously the number of square feet indicating the superficial area of the lumber, thus effecting two records, one of which always accompanies the lumber itself, while the other is adapted for preservation independently thereof.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for the purpose specified, comprising a suitable frame, sprocket-wheels mounted in the upper portion thereof, two endless chains running on said wheels and provided with teeth and adapted for supporting and carrying boards or other lumber to be measured, toothed vertical wheels mounted upon the rotatable shaft and having teeth that project above the upper bights of said chains, a radial type-carrier arranged vertical in the frame and provided with movable types around its periphery, means for operatively connecting such type-carrier with the aforesaid toothed wheels, and pivoted push-pawls arranged contiguous to the upper and lower edges of the type-carrier and adapted to engage the movable types, means for retracting said types after having been projected from the periphery of the carrier by engagement with the pawls, the upper side of the type-carrier being in proximity to the boards or other lumber passing over the same; a movable tape arranged to travel under the type-carrier, a carriage adapted to move horizontally and provided with a pad over which the tape moves, the said carriage being provided with a push-pawl; feed-rollers which engage the tape and are intermittently rotated by the pawl on the carriage, the types on the lower side of the carrier being provided with teeth adapted to engage the upper portion of the carriage so that when the types are projected the carriage is moved correspondingly, substantially as described.

2. In an apparatus for the purpose specified, the combination, with sprocket-wheels, and two endless chains mounted thereon and provided with teeth for carrying lumber, of a type-carrier consisting of a disk having radially-movable types arranged on its periphery, means for engaging the types and forcing them outward as the type-carrier is rotated and retracted, the type-carrier being actuated corresponding to the width of the lumber being measured and the movement of the same

on the aforesaid chains, substantially as described.

3. The combination, with means for carrying lumber, of a type-carrier having types arranged radially around its periphery and movable in a radial direction, means for holding the types normally retracted, a pivoted pawl adapted to move over the inner ends of the types when the type-carrier is rotated by the advance of the lumber, one of the types being forced out when the type-carrier is retracted, and means for retracting the type-carrier, substantially as described.

4. The combination, with the frame, and means for carrying lumber across the same, of a type-carrier consisting of a disk arranged vertical and operatively connected with the means for carrying the lumber, a device arranged on the lower portion of the frame and adapted for contact with the types when the carrier is retracted, a spring for effecting such retraction, a movable tape arranged below the type-carrier, a reciprocating carriage over which the tape is caused to travel, and means for feeding the tape automatically with each imprint thereon, substantially as described.

5. The combination, with a suitable frame, and means for carrying lumber across the same, of a type-carrier consisting of a vertical disk having types arranged radially around its periphery and movable in radial lines, the types being provided with teeth spaced apart, springs for retracting the types after being projected for printing, a pivoted pawl adapted to ride over and engage the types in the manner described, a spring for retracting the type-carrier, a horizontally-movable carriage arranged below the type-carrier and provided with a spring-supported pad, a spring for retracting the said carriage, a tape-carrier and a tape which is adapted to pass over the pad of the carriage, it being made of less width than the space between the teeth of the types, and feed mechanism adapted to be automatically operated by the carriage for effecting due intermittent movement of the tape, substantially as described.

6. The combination, with a suitable frame and means for carrying lumber across the same, of a type-carrier provided on its periphery with types which are movable radially and provided with teeth on their outer ends, springs for retracting the types and holding them in normal position, a pivoted pawl adapted to pass over the types when the carrier is rotated by passage of lumber as described, and to engage a type when the carrier is retracted, whereby a type is projected, a carriage arranged below the type-carrier and adapted to travel horizontally, a spring for holding the carriage normally in a retracted position, the upper side of the carriage being provided with a part adapted for engagement with the teeth of the types, whereby, when

one of the latter is projected, the carriage is moved against the tension of its spring, substantially as described.

7. The combination, with a suitable frame
5 and means for carrying lumber across the same, of a type-carrier consisting of a disk having a series of types arranged radially on its periphery and provided with teeth on their outer ends, springs for retracting the types,
10 a pivoted pawl for engaging the same and forcing outward an individual type, a carriage adapted to travel below the type-carrier, a spring for retracting the same, a pad which is pivoted and supported by a spring
15 at one end in such proximity to the type-carrier that it will engage the teeth of any type that may be projected, a tape-reel, and a tape adapted to pass over the top of the carriage and between the teeth of the types, friction
20 feed-rolls engaging opposite sides of the tape and one of them provided with a ratchet-wheel, the carriage being provided with a pawl adapted to engage the ratchet when the carriage is fed forward by engagement with
25 a type, substantially as described.

8. The combination, with a rotatable type-carrier, having types adapted to be projected

from the periphery and their outer ends provided with teeth, of a pad, and a pad-supporting device arranged below the carrier, the
30 pad being arranged in such proximity to the periphery of the type-carrier that it is engaged by the teeth of any type which may be projected therefrom in passing over the pad, whereby the pad is moved to the right cor-
35 responding to the rotary movement of the type-carrier, substantially as described.

9. The combination, with a frame and means for carrying lumber across the same, of a tape
40 arranged in the lower portion of the frame and means for supporting the same, and a type-carrier comprising a disk having type arranged on its periphery and movable radially, means for retracting such types, and de-
45 vices for forcing the types outward simultaneously on the upper and lower sides of the type-carrier, whereby an imprint is effected on the lumber and the tape at the same time, substantially as described.

CHARLES G. BLADES.

Witnesses:

G. W. ALLEE,
J. E. WARREN.