

No. 640,247.

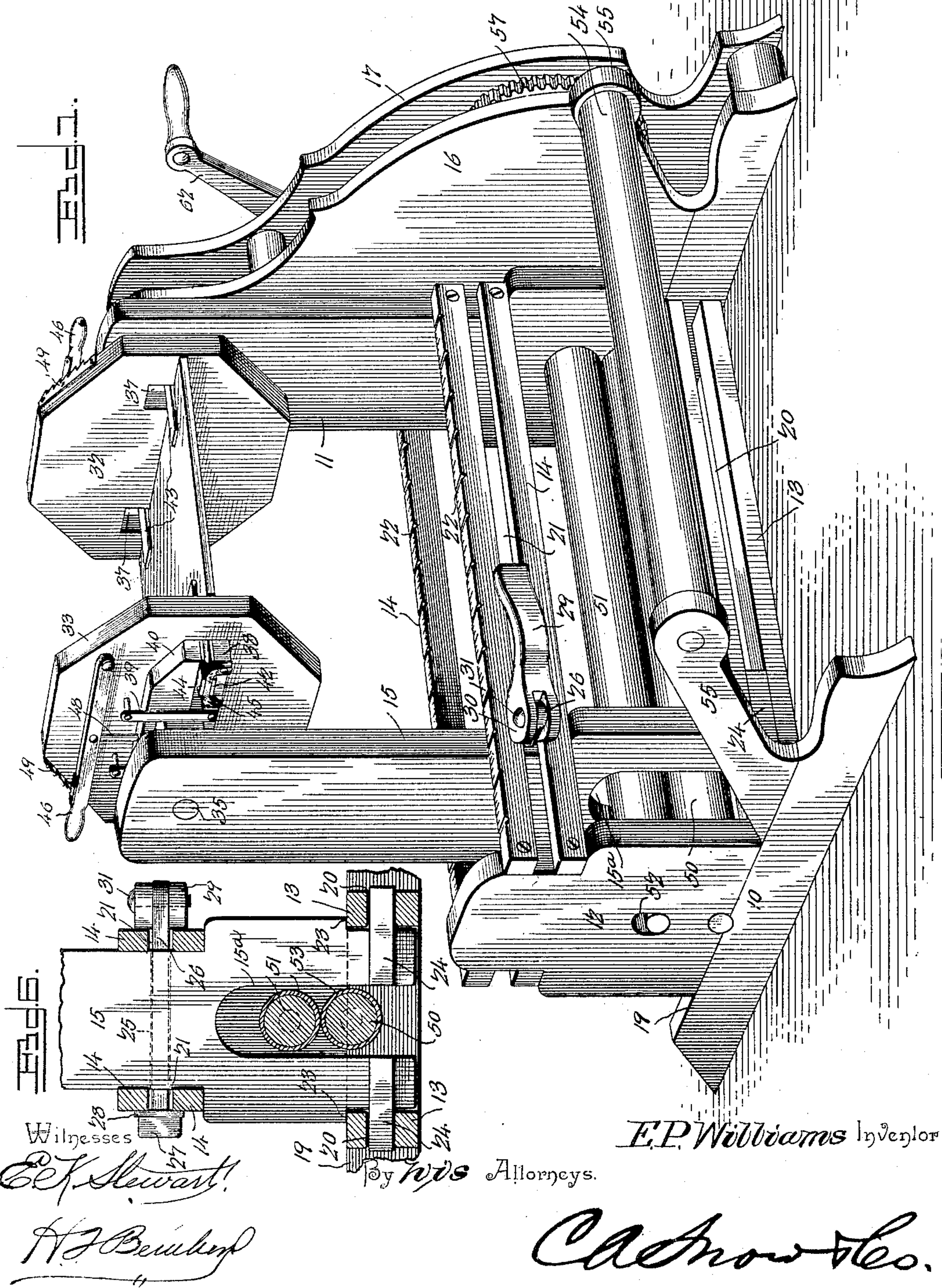
Patented Jan. 2, 1900.

E. P. WILLIAMS.  
CLOTH MEASURING MACHINE

(Application filed June 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.





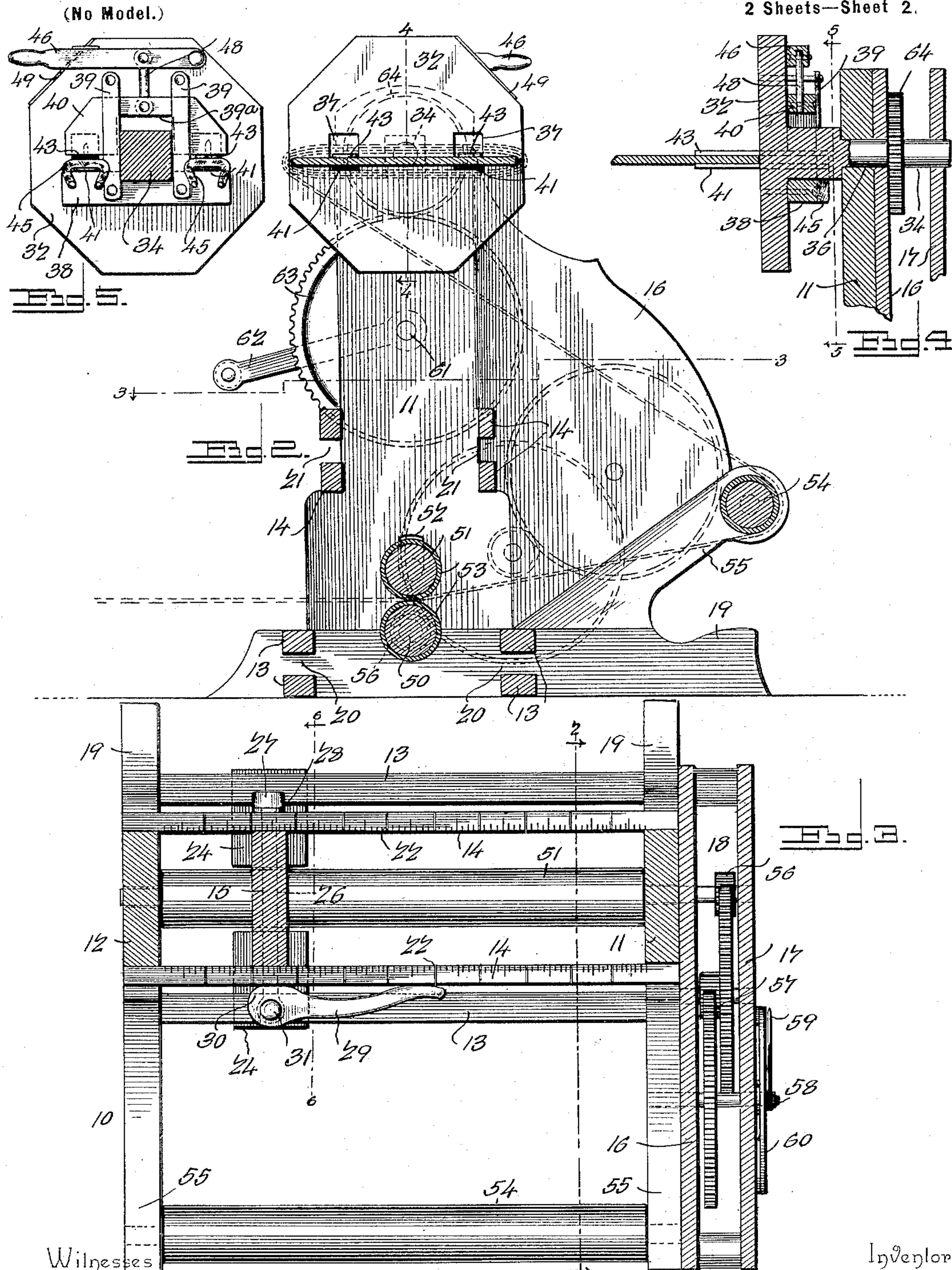
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2 Sheets—Sheet 2.



Witnesses  
E. F. Stewart  
H. A. Bunker

By *W. S. Allor* Attorney.

Inventor  
E. P. Williams

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

ELIJA PINKNEY WILLIAMS, OF MINEOLA, TEXAS.

## CLOTH-MEASURING MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,247, dated January 2, 1900.

Application filed June 14, 1899. Serial No. 720,538. (No model.)

*To all whom it may concern:*

Be it known that I, ELIJA PINKNEY WILLIAMS, a citizen of the United States, residing at Mineola, in the county of Wood and State of Texas, have invented a new and useful Cloth-Measuring Machine, of which the following is a specification.

My invention relates to improvements in cloth-measuring machines; and the object in view is to provide a simple and easily-operated machine for obtaining the yardage of all kinds of fabric in the bolt, whereby a merchant may readily obtain accurate measurement of the goods when delivered to him from the manufacturer or in "taking stock," thus minimizing the cost, time, and labor of estimating the quantity of goods on hand.

A further object of the invention is to make provision for adjustment of the machine to fabrics which vary in width, and such adjustment is effected without dismantling the operating elements, so that it is only necessary to insert or remove the cloth bolt.

A further object is to provide for the expeditious introduction or removal of the bolt-board into or from the carrier or reel, to make the latter adjustable to bolt-boards of different thicknesses, and to firmly clamp the bolt-board in position.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated a preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a fabric-measuring machine constructed in accordance with my invention and showing a bolt-board in position between the gripping-fingers and the revoluble carrier. Fig. 2 is a vertical transverse section through the machine on the plane indicated by the dotted line 2 2 of Fig. 3 looking in the direction indicated by the arrow. Fig. 3 is a sectional plan view on the plane indicated by the dotted line 3 3 of Fig. 2. Fig. 4 is a detail sectional view through a part of the revoluble carrier on the plane indicated by the dotted line 4 4 of Fig.

2. Fig. 5 is a sectional elevation of one of the carrier-heads, the plane of the section being indicated by the dotted line 5 5 of Fig. 4 looking in the direction of the arrow. Fig. 6 is a section on line 6 6 of Fig. 3.

The same numerals of reference are used to indicate like and corresponding parts in each of the several figures of the drawings.

The main frame 10 of my cloth-measuring machine has its reel-supporting devices constructed for lateral adjustment for the purpose of widening the space between the reel-heads in order to accommodate the fabrics of different widths, and this frame consists of the fixed uprights 11 12, the two pairs of cross-rails 13 14, the adjustable upright 15, the side plates 16, and the face-plate 17. The upright 12 is considerably shorter than the upright 11, and these two uprights are held or maintained in parallel relation at all times by the cross-rails 13 14, said rails being secured firmly to the uprights in any approved way. The side plate 16 extends laterally from one side of the upright 11, to which it is fixed in any approved way. The face-plate 17 is coextensive in width to the upright 11 and the plate 16, and said face-plate is parallel to the upright and the plate 16 to provide a space or chamber 18 between the parts, the face-plate being fastened or united in any approved way to the frame. The space or chamber 18 is closed on one side by the face-plate, while its other side is closed by the upright 11 and the plate 16. If desired, a suitable casing may be fastened to the edges of the plates 16 17 and the upright 11 to close the edges of the space 18, the latter serving to house the gearing that propels the revoluble carrier and the gearing of the register mechanism, as will hereinafter appear. The fixed uprights and the face-plate of the frame are enlarged to form the feet 19, adapted to rest upon the floor and to firmly support the machine in place.

The lower rails 13 are secured in pairs to the permanent uprights of the main frame, and said rails are disposed in the same horizontal plane, so as to bring the slots or guide-ways 20 in alinement horizontally one with the other. The upper rails 14 are secured to the uprights 11 12 at a suitable elevation above the lower rails 13, and said upper rails



14 are in the same horizontal plane and parallel one to the other. The upper rails are also provided with horizontal slots or guideways 21, the slot of one rail 14 being in alignment with the slot of the other rail 14, and one or both of these upper rails are provided with scales 22, (see Figs. 1 and 2,) which insure accuracy and expedition in the adjustment of the movable upright 15 for the accommodation of fabrics which differ in width. The rails forming the upper and lower pairs are spaced apart a distance equivalent to the width of the adjustable upright 15, and this upright is thus adapted to fit between and to be confined slidably by the two pairs of rails, whereby said upright 15 is mounted for lateral adjustment with respect to the upright 11. This adjustable upright is equal in height and width to the upright 11, and said adjustable upright is peculiarly constructed, so as to be guided or directed by the rails, a clamping device being provided for holding the movable upright in the position to which it may be adjusted. Near its lower end this movable upright 15 is provided with cut-away portions 23, adapted to receive the lower rails 13, and said movable upright is also provided with flanges 24, which extend into the slots or guideways 20, provided by the lower rails 13. A transverse opening 25 is provided in the movable upright 15 in the horizontal plane of the guideways or slots 21 in the upper rails 14, said slot or opening 25 receiving the horizontal clamping-bolt 26, the length of which bolt exceeds the width of the upright 15. At one end this bolt is formed with a head 27 and provided with a washer 28, arranged to be drawn against one of the slotted upper rails 14. The other end of the clamping-bolt projects through the guideway or slot 21 of the upper cross-rail 14, and to this free end of the clamping-bolt is connected a binding or clamping lever 29. Said lever is formed with an eccentrically-enlarged head 30, and it is connected by a fulcrum-bolt 31 to said clamping-bolt in a position to work in a horizontal plane and to force its eccentric head or face into tight frictional contact with one of the rails 14. It will be noted that the flanged and notched lower part of the movable upright or post 15 is fitted slidably in the guideways of the lower pair of rails 13 and that the clamping-bolt 26 is fitted slidably in the guideway 21 of the rails 14. This relation of the parts insures the guidance of the upright or post 15 laterally with respect to the upright 11 and keeps said posts in parallel relation. The movement of the post 15 may be gaged by reference to the scales on the rails 14, and the lever 29 may after adjustment of the post be turned on its vertical pivot 31 to make the eccentric-lever head bind against one of the rails 14 and draw the head 27 of said clamping-bolt against the other rail 14, thereby holding the post 15 securely in its adjusted position.

The rotary carrier or reel of my machine

consists of the heads 32 33 and the short shafts 34 35, said heads being equipped with means for clamping the bolt-board thereto. The shaft 34 is journaled in a proper bearing at the upper extremity of the permanent upright 11, while the other shaft 35 is journaled in a bearing on the corresponding end of the movable post 15. The two shafts are thus mounted independently of each other in the permanent and movable uprights of the machine-frame, and the reel-heads 32 33 are fastened to the inner ends of the shafts, so that the heads oppose or face each other. These heads are supported by their shafts in opposing and parallel relation, and the shaft 35, with its head 33, is adapted to partake of the lateral adjustment of the movable upright 15, in which said shaft is journaled, whereby the reel-head 33 may be made to approach or recede from the other reel-head 32 on the lateral adjustment of the post 15 with respect to the permanent upright 11. This adjustment of the movable upright with one reel shaft and head provides for the reception of bolt-boards which may vary in length between the parallel heads 32 33 of the reel and the posts 11 15 of the machine-frame, and said reel-heads are constructed with clamping or gripping devices which provide for the easy insertion or removal of the bolt-board. The shafts 34 35 of the revoluble carrier are mounted in bearings 36 of the posts 11 15 to rotate freely therein, and with one of these shafts may be associated a suitable means for rotating the reel by hand in rewinding the fabric. As shown by Figs. 1, 2, and 5 of the drawings, each reel-head is polygonal in form; but this is not essential. Each head is provided with transverse slots 37, which are disposed on opposite sides of the shaft to which the reel-head is fixed, and on its outer face said head is equipped with a fixed block 38, disposed in a plane at one side of the slots 37, said block 38 being secured fast to the head in any approved way. A pair of guide-rods 39 are disposed on opposite sides of the plane of the head-shaft, and these guide-rods are fixed to the block 38 and to the head. (See Figs. 4 and 5.) A slidable block 40 is arranged at one side of the fixed block 38 on each head and between said head and the guide-rods 39, said slidable block being free to move toward or from the fixed block 38. As shown by Fig. 5, the slidable block is notched at 39<sup>a</sup> to fit the shaft and enable its ends to quite closely approach the fixed block 38. The head 32 is equipped with a pair of fixed clamping-fingers 41, and in like manner the head 33 has a pair of clamping-fingers 42, and said fixed fingers and the two heads are disposed in the same horizontal plane in order that the bolt-board may rest thereon in adjusting the latter to the reel. Each clamping-finger 41 or 42 is secured in any suitable way to the fixed block 38 on the reel-head, and the fingers 41 of each head extend from the fixed block 38 thereon through



the slots 37, so as to protrude a proper distance beyond the inner face of the reel-head. Pairs of movable clamping-fingers 43 44 are fastened to the slide-blocks 40 on the two  
 5 reel-heads to extend through the slots 37 and to lie in parallel relation to the fixed clamping-fingers, said movable clamping-fingers being adjustable laterally with respect to the fixed fingers 41 42 on the adjustment of the  
 10 slide-blocks 40. These slide-blocks and the fingers 41 42, carried thereby, are adapted to act against compressible cushions 45, which are attached to the fixed blocks 38 and lie in the path of the slidable blocks 40. The cushions limit the travel of the slidable blocks  
 15 and the fingers thereon relative to the fixed blocks, which carry the other pair of fingers, and thus the two pairs of fingers on each head are adapted to be spaced apart a proper distance to receive the bolt-board. In view of the fact that the cushions offer resistance to a certain extent to the travel of the movable fingers with respect to the fixed fingers on each reel-head I have found it desirable to  
 20 provide means which forcibly impel the movable block and the fingers with relation to the fixed block and fingers, so as to compress the cushions, and this adjusting means is shown by Fig. 5 in the form of a lever, which is fulcrumed at one end to the head. The lever 46  
 30 is connected operatively with the block 40 by a link 48, having pivotal connection with said block and lever, said lever being provided with a holding-lip adapted to engage a  
 35 toothed rack 49, which is fixed to the reel-head. From this description, taken in connection with the drawings, it will be seen that the levers on the reel-head may be moved to withdraw the slidable blocks 40 from the fixed  
 40 blocks 38, and thus separate the pairs of fixed and movable fingers. The bolt-board may have its ends thrust into the spaces between the pairs of fixed and movable fingers, so as to rest upon the fixed fingers, after which the levers should be adjusted to force the movable  
 45 fingers upon the bolt-board, the lips of said levers engaging with the racks 49 to hold the movable blocks and the fingers thereon in position. The bolt-board is thus firmly clamped between the fingers, so as to operatively connect the two heads of the reel, which is constructed to insure the easy removal and  
 50 insertion of the bolt-board.

The measuring-roll 50 of my machine is  
 55 journaled in suitable bearings at the lower part of the uprights 11 12, the movable post 15 being slotted at 15<sup>a</sup>, so as to straddle the measuring-roll and the pressure-roll 51, which is associated with the measuring-roll. This  
 60 measuring-roll may be of any suitable dimensions; but I have found that a roll two and seven-eighths inches in diameter and adapted to rotate four times on its axis will indicate the measurement of one yard of fabric. The pressure-roll 51 is situated above  
 65 and in the vertical plane of the measuring-roll, and this pressure-roll is confined loosely

or slidably in guide-slots 52, provided in the lower parts of the uprights 11 12. This pressure-roll should be heavy enough to depress  
 70 the fabric into frictional contact with the measuring-roll for the purpose of insuring rotation of the measuring-roll as the cloth travels thereover, and to increase this frictional engagement between the fabric and  
 75 the rolls I may provide jackets 53 on the surfaces of the rolls. (See Fig. 2.) A guide-roller 54 is arranged at one side of the measuring and pressure rolls substantially parallel therewith, said guide-roller being journaled in brackets 55 on one side of the frame  
 80 10. One end of the measuring-roll 50 is extended into the space 18 of the frame for the reception of the gear 56, which meshes with one of the train of gears 57 that operates the  
 85 hand-arbor 58 of the register mechanism. The train of register-gearing is contained or housed in the space 18; but the arbor protrudes through the face-plate 17 for the reception of a pointer 59, adapted to traverse the  
 90 register-dial 60. A rewinding-shaft 61 is journaled in bearings on the face-plate 17 and the upright 11, and this shaft is equipped with a hand-crank 62 and with a gear 63, the latter being arranged to mesh with a gear 64  
 95 on the reel-shaft 34, as shown by dotted lines in Fig. 2.

This being the construction of my improved machine, the operation thereof may be summarized as follows: The bolt of cloth or  
 100 other fabric is adjusted between the fingers on the reel-head, and one end of the fabric is led around the guide-roller 54 and between the measuring and pressure rolls, as shown by dotted lines in Fig. 2. The cloth or fabric is drawn from the bolt on the reel to or  
 105 upon a suitable winding device, and the movement of the cloth rotates the measuring-roll 50 to drive the register, thereby propelling the arbor 58 and causing the pointer  
 110 to traverse the dial, which indicates the yardage of the cloth. The machine may be used for measuring the cloth as it is drawn from the bolt which is clamped in the reel; but, on the other hand, the operator may rotate the  
 115 crank 62 for the purpose of turning the reel to wind the cloth or fabric on the bolt-board, whereby the machine may measure the fabric either when it is drawn from the bolt-board or when rewinding the fabric on said  
 120 bolt-board. The adjustable post, with the reel-shaft 35 and reel-head 33, may be adjusted toward or from the upright 11 to vary the space between the heads of the reel for the accommodation of fabrics which vary in  
 125 width. The clamping devices for the bolt-board are easily operable for the insertion or removal of the bolt-board, and said devices firmly hold the bolt-board in place.

Changes may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention embodied. Hence I do not desire to be limited to the precise form of all



the parts as shown, reserving the right to vary therefrom.

Having thus described the invention, what I claim is—

5 1. In a fabric-measuring machine, the combination of a frame having the slotted cross-rails, a movable post slidably fitted between said rails and provided with flanged feet which are confined by the lower rails, a clamping-  
10 bolt passing through the movable post and provided with a head adapted to bind against one rail, an eccentric lever fulcrumed to the bolt to bind against another rail, and a two-part reel with its members mounted respec-  
15 tively in the frame and the movable post, substantially as described.

2. In a fabric-measuring machine, a reel comprising the heads having openings therein, clamping-fingers fixed to said heads and  
20 projecting through the openings, movable clamping-fingers projecting through said openings and arranged to coact with the fixed fingers, and means located upon the outer faces of the heads for adjusting said movable  
25 fingers.

3. In a fabric-measuring machine, a reel comprising the spaced heads provided with transverse slots, stationary fingers fixed to said heads and projecting through the slots  
30 thereof, movable fingers arranged to play in said slots, means for adjusting the movable fingers laterally with respect to the fixed fingers, and spring-cushions adapted to receive the movable fingers when in their operative  
35 positions, substantially as described.

4. In a fabric-measuring machine, a reel comprising the opposing heads having the

transverse slots, blocks fixed to said heads and carrying the stationary fingers, other blocks confined slidably on the heads and  
40 provided with the movable fingers which are disposed in coöperative relation to the fixed fingers, and means for adjusting the slidable blocks, substantially as described.

5. In a fabric-measuring machine, a reel  
45 comprising the slotted heads, blocks fixed to said heads and provided with fingers, compressible cushions mounted on said blocks, slidable blocks carrying the movable fingers, and levers connected with the slidable blocks  
50 and having means for locking the same in place, substantially as described.

6. In a fabric-measuring machine, the combination with a frame, of a reel journaled therein and comprising a slotted head, blocks  
55 fixed to said heads and provided with fingers, compressible cushions mounted on said blocks, slidable blocks carrying the movable fingers, and levers connected with the slidable blocks and having means for locking the same  
60 in place, a measuring-roll journaled in the frame, a pressure-roll in coöperative relation to the measuring-roll, a guide-roll between said reel and the measuring-roll, and a registering mechanism actuated by the measuring-  
65 roll.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ELIJA PINKNEY WILLIAMS.

Witnesses:

A. A. WIGINGTON,  
A. B. TERRY.