

No. 895,610.

PATENTED AUG. 11, 1908.

A. ARNOLD.
CARD CLOTHING ATTACHING MEANS.

APPLICATION FILED AUG. 19, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

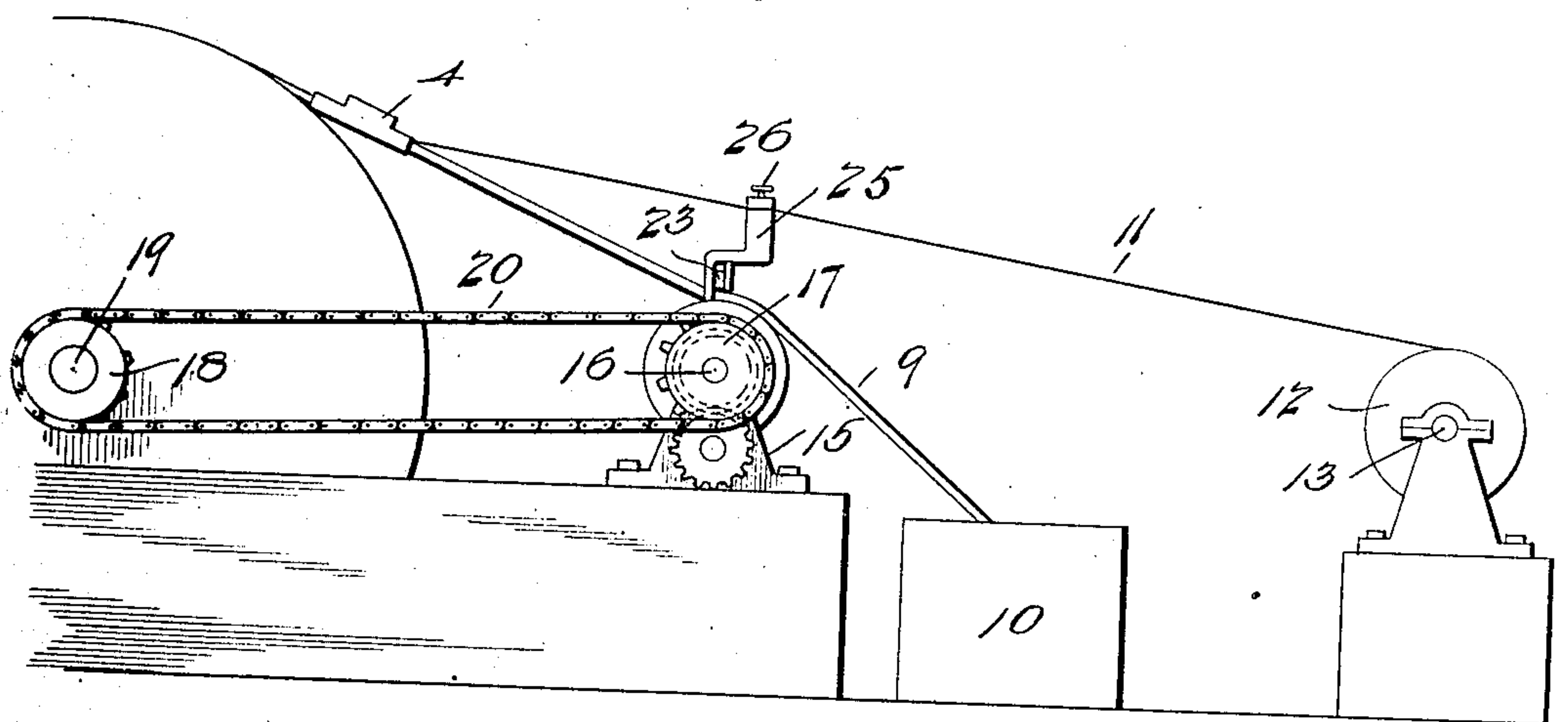
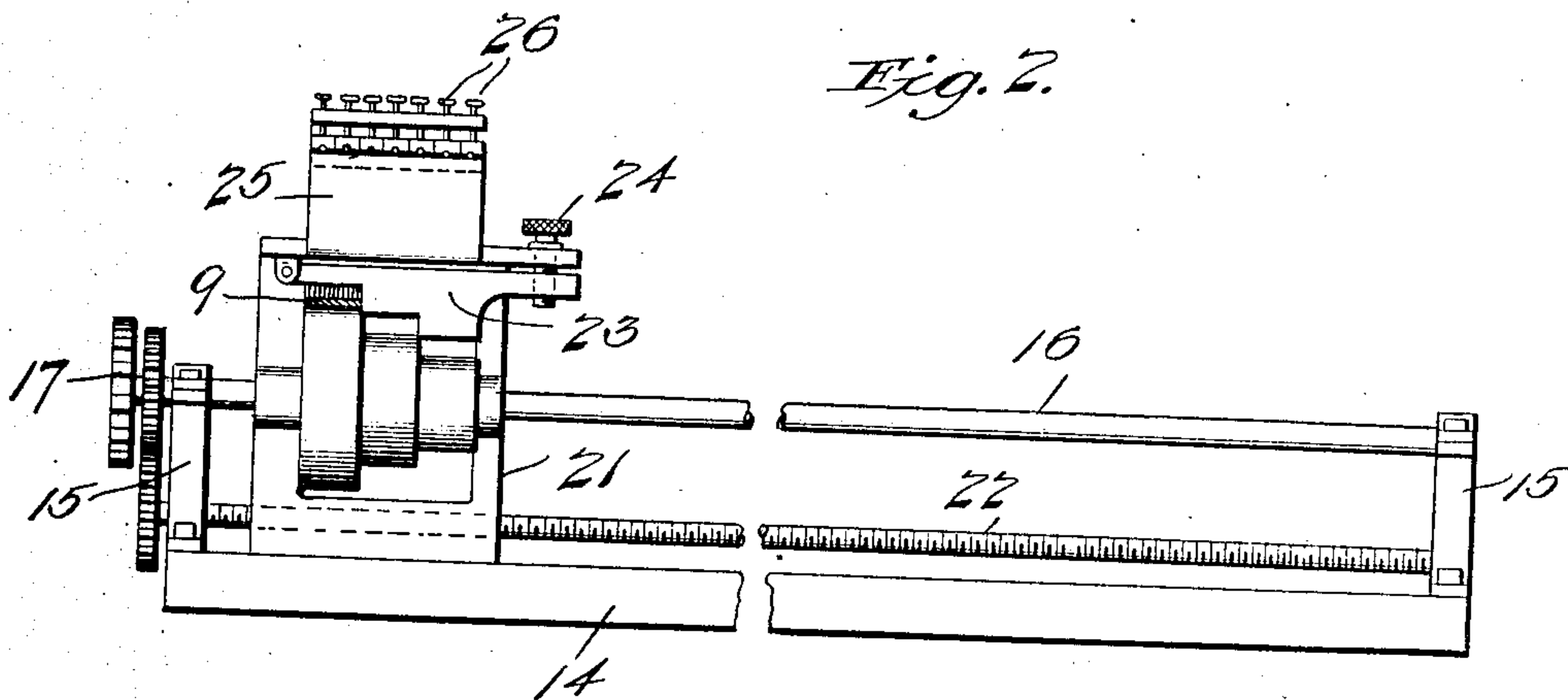


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

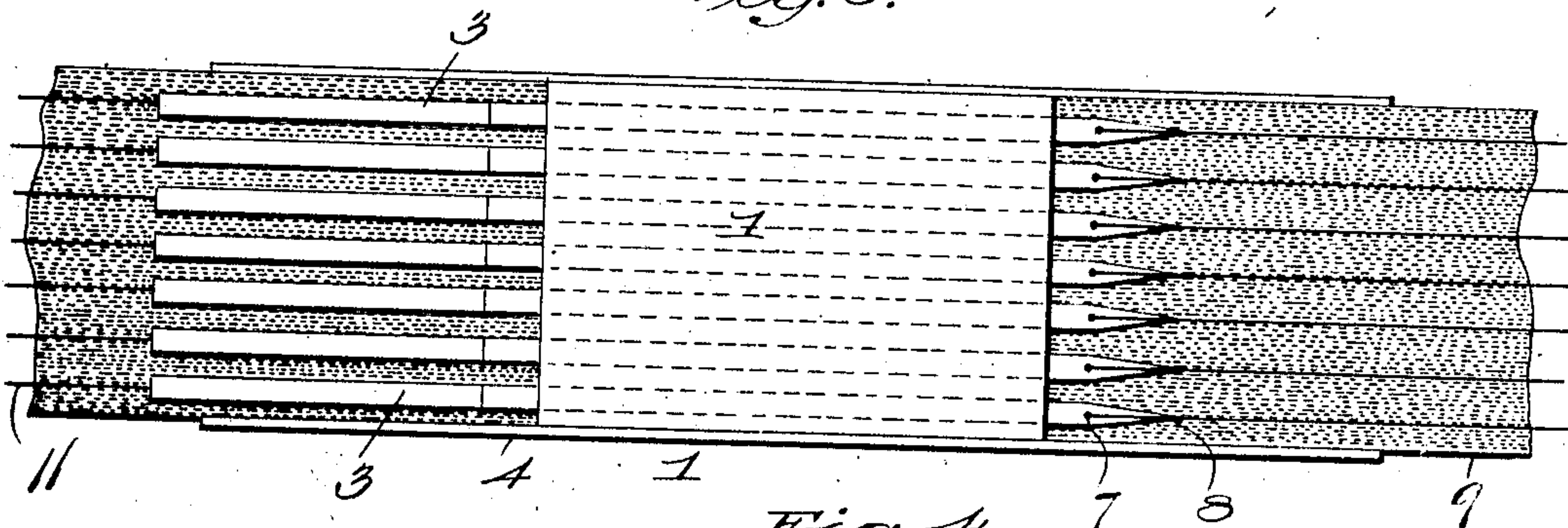


Fig. 4.

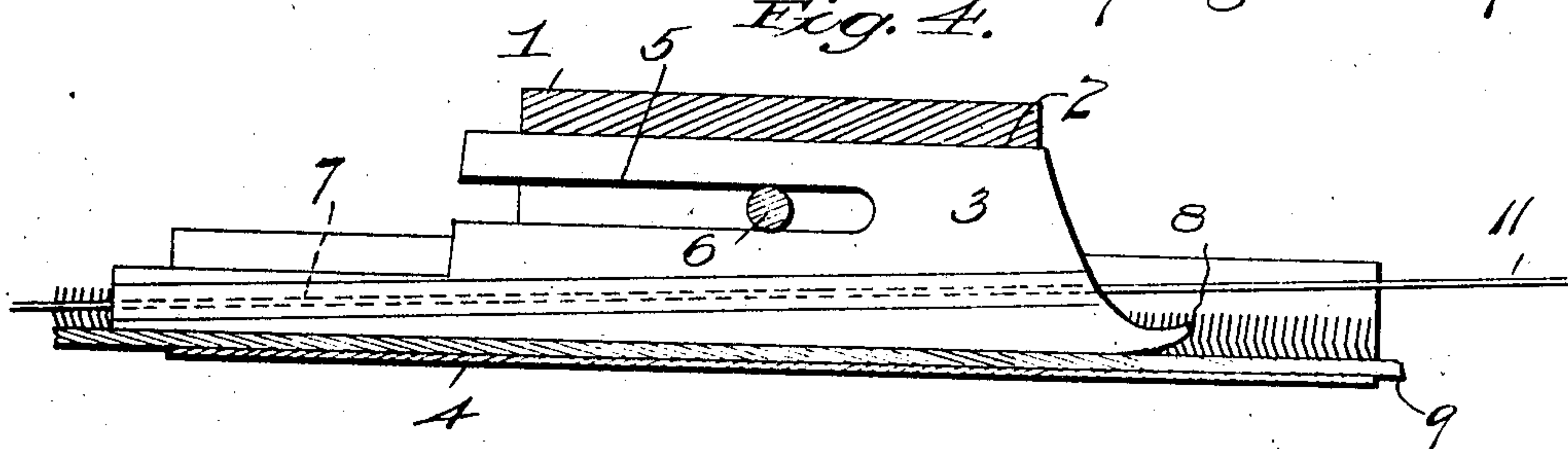


Fig. 5.

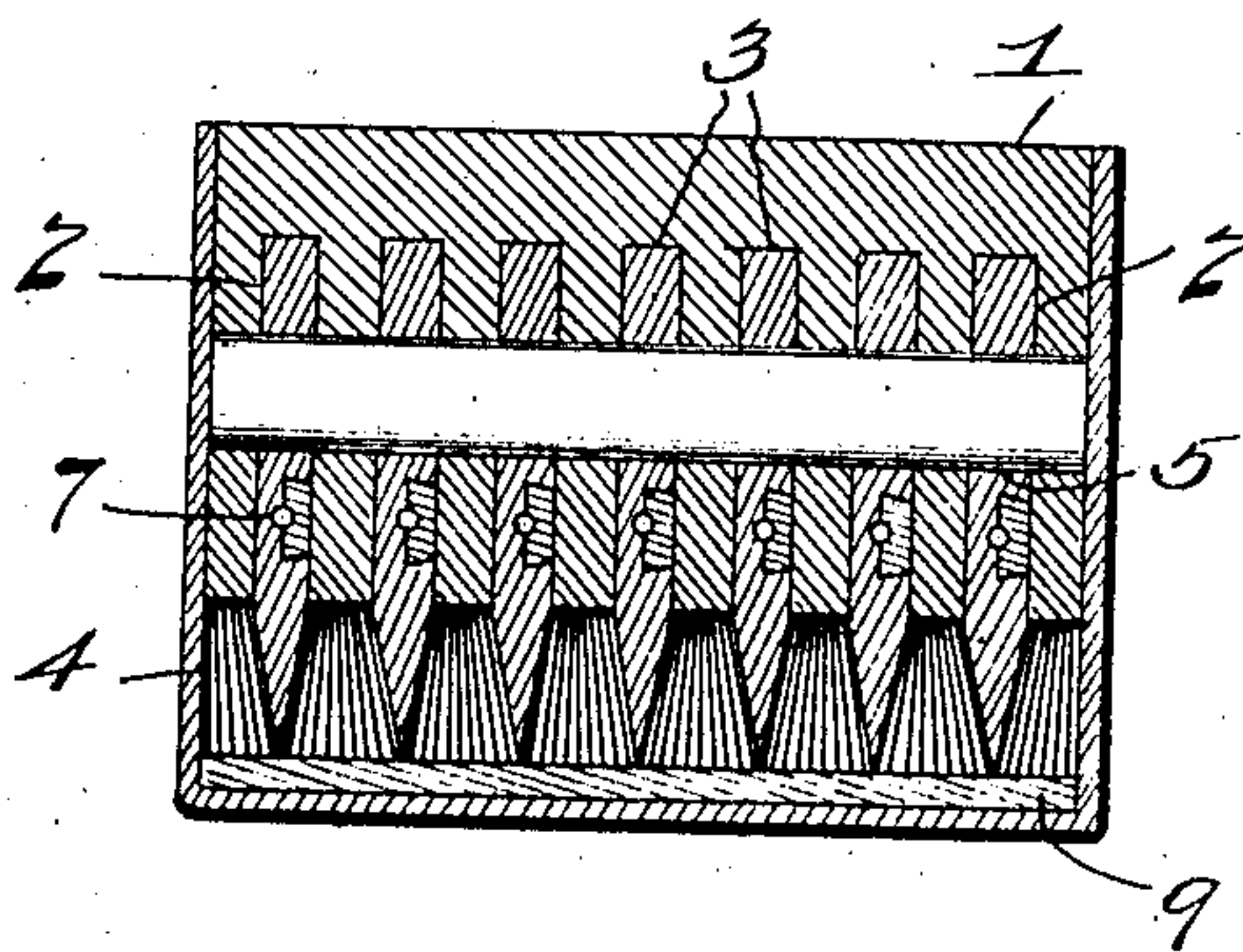
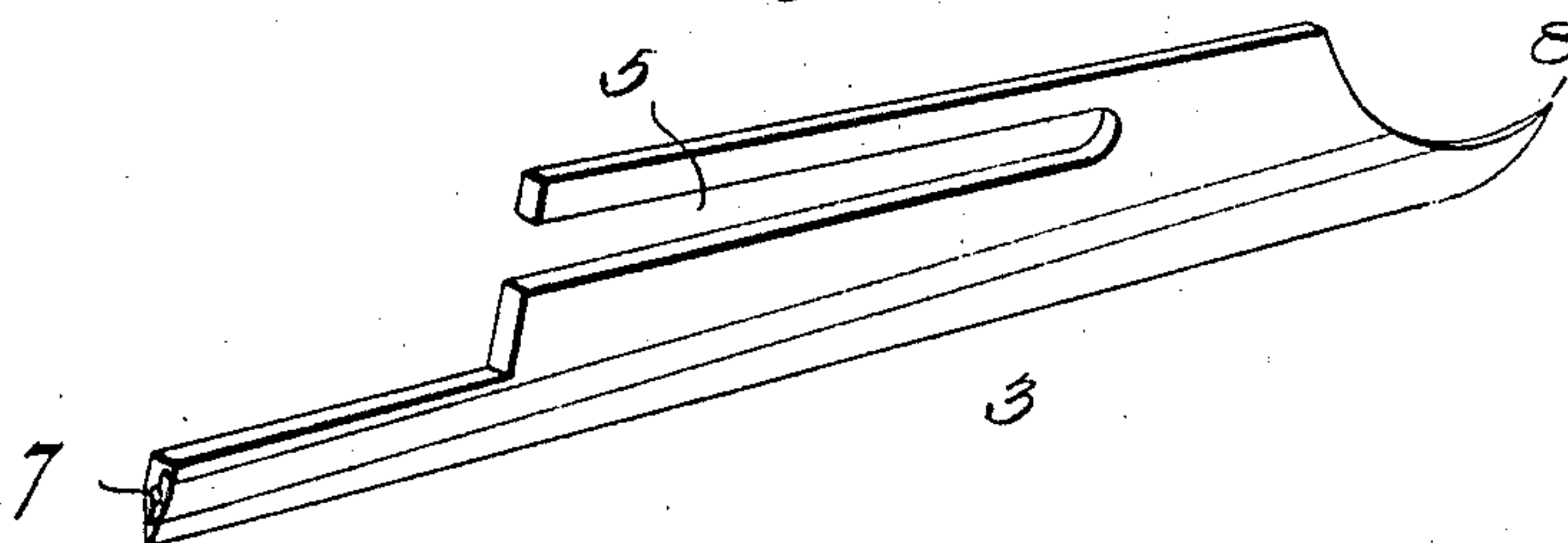


Fig. 6.



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UNITED STATES PATENT OFFICE.

ADDISON ARNOLD, OF CHARLOTTE, NORTH CAROLINA.

CARD-CLOTHING-ATTACHING MEANS.

No. 895,610.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed August 19, 1907. Serial No. 389,257.

To all whom it may concern:

Be it known that I, ADDISON ARNOLD, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Means for Fastening on Card-Clothing, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to means for fastening card-clothing upon cylinders, doffers, or any kind of rolls using card-clothing for carding cotton, wool, flax, hemp, or any other carding, brushing, or napping where
15 fillet card-clothing is used.

Ordinarily the cylinder of a carding machine requires about two hundred and sixty-eight feet of two-inch clothing to cover the same, the cylinder being provided with about
20 three hundred wooden plugs into which tacks are driven, said tacks passing through the clothing. These tacks injure the clothing and seriously impair the value thereof, as well as the product of the machine, as the
25 heads of the tacks mash down a great number of the teeth of the card-clothing, leaving hollows or voids wherever the tacks occur.

The object of this invention is to do away with tacks altogether and securely fasten the
30 card-clothing upon the cylinder or doffer in such a way that the clothing is held tightly against the surface of the cylinder at all points throughout its length, being thereby prevented from buckling up and presenting
35 humps or projections which would seriously interfere with the proper working of the machine, and which would greatly impair the product of the machine.

Broadly considered, the invention resides
40 in fastening the card-clothing down on the cylinder or doffer by means of continuous strands which encircle the clothing and cylinder, the said strands, under the preferred embodiment of the invention, being applied
45 under stress or tension around the clothing, the clothing itself being also preferably applied around the cylinder under tension.

With the above and other objects in view, the nature of which will more fully appear as
50 the description proceeds, the invention consists in the novel construction, combination, and arrangement herein fully described, illustrated, and claimed.

In the accompanying drawings:—Figure 1
55 is a diagrammatic side view of a sufficient portion of a carding machine to illustrate the

present invention which is shown applied thereto. Fig. 2 is a face view of the strand and fillet feeding and tension device of the apparatus used in carrying out the invention. 60 Fig. 3 is a plan view of the plow and guide portion of the apparatus. Fig. 4 is a vertical longitudinal section through the same. Fig. 5 is a vertical cross section through the same. Fig. 6 is an enlarged detail view of one of the 65 plows.

The guide and plow elements of the apparatus are similar to corresponding elements shown and described in my Patent No. 862,374, dated August 6, 1907, for means for
70 tacking on card clothing, the guide consisting of a block 1 having a plurality of ways or grooves 2 in which the plows 3 slide back and forth during the fastening-on operation, as fully described in said prior patent. The 75 guide and plows are all embraced within a suitable casing 4 adapted to be held in the hand of the operator or fed across the face of the cylinder or doffer by suitable mechanism. The plows are slotted as shown at 5 to receive 80 a cross-pin 6 held by the guide, said pin serving to hold the plows in proper position while permitting the same to move longitudinally in the guide-ways. The plows used in the present apparatus, however, differ essentially 85 from those shown in my prior patent in that each plow is formed with a longitudinal passage or way 7 for a strand such as wire, permitting such strand to be led through the plow lengthwise for a purpose which will 90 fully appear. Each plow 3 is provided with a sharpened and preferably upturned point 8 adapted to pass between the ribs of the card clothing so as to accurately spread apart the 95 teeth prior to laying the strand between the same, and the passage 7 for the strand may start comparatively high at the advance end of the plow and incline downward toward the opposite or heel end of the plow, coming out 100 well down toward the bottom edge of the plow so as to lay the strand well down upon the body or backing of the clothing between the ribs of teeth, as shown in Fig. 4.

The fillet 9 of card-clothing is drawn from a suitable receptacle 10 and led through the 105 casing 4 under the guide 1 and thence onto the cylinder or doffer. The securing strands 11, of which there may be any desired number according to the number of ribs on the card-clothing, are drawn from reels or spools 110 12, of corresponding number, and these reels or spools may all be mounted on a common

shaft 13 journaled in suitable bearings on the machine frame. After leaving the reels or spools, the strands 11 are led through the plows in the manner above indicated and directed by said plows between the ribs of teeth of the card-clothing and finally wound around the cylinder and clothing, preferably under tension as hereinafter fully described.

The feeding and tension device, shown in Figs. 1 and 2, comprises a base 14 having standards 15 in which a shaft 16 is journaled, the base being secured to the carding machine by any suitable means and the shaft 16 extending lengthwise of said base and parallel with the shaft of the cylinder. The driving mechanism for the shaft 16 may consist of sprocket wheels 17 and 18 on the shaft 16 and the cylinder shaft 19, respectively, and a sprocket chain 20 passing around said wheels, whereby motion is communicated to the shaft 16 from the cylinder shaft, the sprockets being proportioned to impart the desired speed to the shaft 16. As the fillet is fed onto the cylinder spirally, it is important to present the fillet properly and evenly to the cylinder, and in order to accomplish this a feeder head 21 is mounted on the base 14 and adapted to travel lengthwise thereof, said head being gradually moved along by means of a feed screw 22 journaled in the standards 15 and turning in a threaded opening in the head 21, said screw being geared to the shaft 16 so as to be operated thereby at the necessary speed. Fast on the shaft 16 is a cone pulley over which the fillet passes and against which said fillet is pressed by means of a tension block 23 carried by the head or traveler 21 and held against the fillet by means of a tension screw 24, or its equivalent which adapts the degree of pressure of the tension block to be regulated to suit the operator.

The strands 11 pass through apertures in an upstanding part 25 of the traveling head 21 and, under the preferred embodiment of the invention a separate tension screw 26 is provided for each strand by the adjustment of which any required tension may be placed on the strand to cause the same to be wrapped with the necessary tightness around the card clothing as it is applied to the cylinder.

To apply card-clothing to a cylinder, the top flats of the machine are removed and also the doffer, the feeding and tension device being mounted on the machine in place of the doffer. The fillet and the strands 11 are then led through the parts of the apparatus in the manner shown and above described, and the cylinder is then revolved slowly, after fastening the ends of the strands to the cylinder by tacks or in any convenient manner. As the cylinder revolves, the fillet is wound upon the cylinder in a spiral path and the strands are simultaneously wound around the clothing in the same way, and by reason of the

tension mechanism above described the clothing is applied tightly to the cylinder and firmly fastened thereon. In this operation the plows work their way accurately between the ribs of teeth of the card clothing, spreading the same apart along the proper lines and laying the strands down against the body or backing of the clothing without in any way bending, injuring or impairing the teeth thereof. When the cylinder has been completely clothed in the manner described, the ends of the strands are fastened by tacks or in any other convenient manner. If desired the strands may be fastened by tacks or otherwise to the cylinder at one or more intermediate points in the length of the fillet.

When the card-clothing is applied to the cylinder in the manner above described, it will be seen that said clothing lies at all points in close contact with the surface of the cylinder and is held down firmly practically throughout its entire area by means of the continuous strands which run in parallel lines very close to each other; therefore the card clothing cannot buckle away from the cylinder and all of the teeth of the clothing are effective and the character of the product of the machine is greatly improved.

In clothing the doffer, the apparatus above described will be mounted upon and between arms or brackets fastened at suitable points on the machine frame, with the shaft 16 lying parallel with the shaft of the doffer; the operation of clothing the doffer being precisely the same as that described in connection with the cylinder.

I claim:—

1. Means for fastening card-clothing on carding machines, comprising a guide, and plows coöperating with the guide and adapted to simultaneously direct a plurality of strands between the ribs of teeth of the clothing and around the clothing and the machine element to which the clothing is applied.

2. Means for fastening card-clothing on carding machines, comprising a guide, plows coöperating with said guide and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, and a tension device for said strands.

3. Means for fastening card-clothing on carding machines, comprising a guide, plows coöperating therewith and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, and tension mechanism acting on the card clothing during its application to such machine element.

4. Means for fastening card-clothing on a carding machine, comprising a guide, plows coöperating with said guide and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, and

tension mechanism acting on the clothing and the strands during the application thereof to the machine element.

5 5. Means for fastening card-clothing on carding machines, comprising a guide, plows coöperating therewith and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, and mechanism for feeding the clothing to such element 10 acting to feed the clothing thereon in a spiral path.

15 6. Means for fastening card-clothing on carding machines, comprising a guide, plows coöperating therewith and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, and a clothing feeder movable across the face of 20 such element.

7. Means for fastening card-clothing on carding machines, comprising a guide, plows coöperating with said guide and adapted to

direct strands between the teeth of the clothing and around the clothing and the machine 25 element to which the clothing is applied, and a traveling feeder which directs the fillet and the strands during the application of the clothing.

8. Means for fastening card-clothing on 30 carding machines, comprising a guide, plows coöperating with said guide and adapted to direct strands between the teeth of the clothing and around the clothing and the machine element to which the clothing is applied, a 35 traveling feeder which directs the clothing and strands during the application of the clothing, and tension mechanism carried by said feeder.

In testimony whereof I affix my signature 40 in presence of two witnesses.

ADDISON ARNOLD.

Witnesses:

T. E. HEMBY,
GEO. W. KING.