

(No Model.)

2 Sheets—Sheet 1.

W. E. BENNETT.

BUTTON FEEDING DEVICE FOR BUTTON SEWING MACHINES.

No. 373,330.

Patented Nov. 15, 1887.

Fig 4

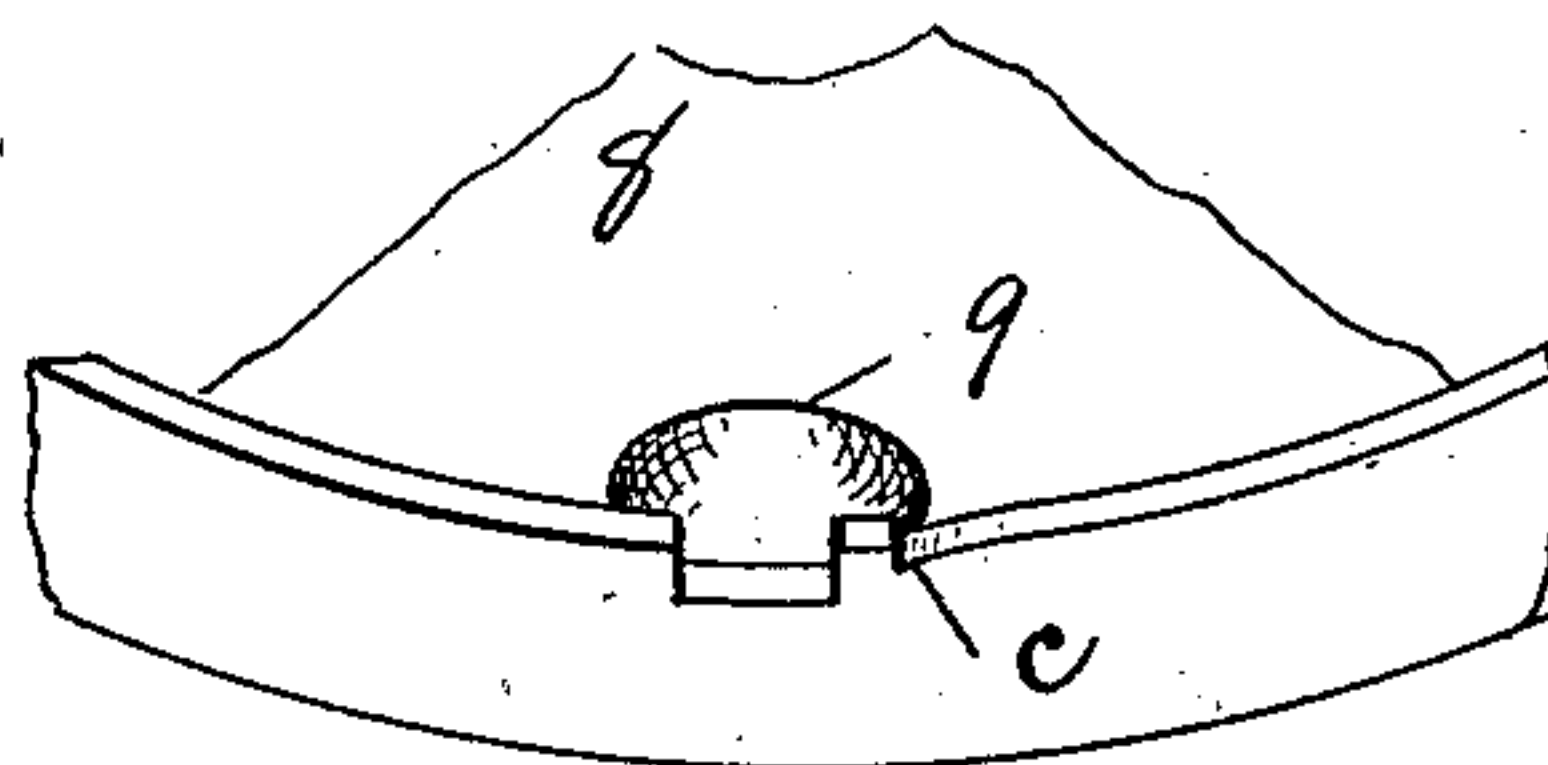


Fig 2

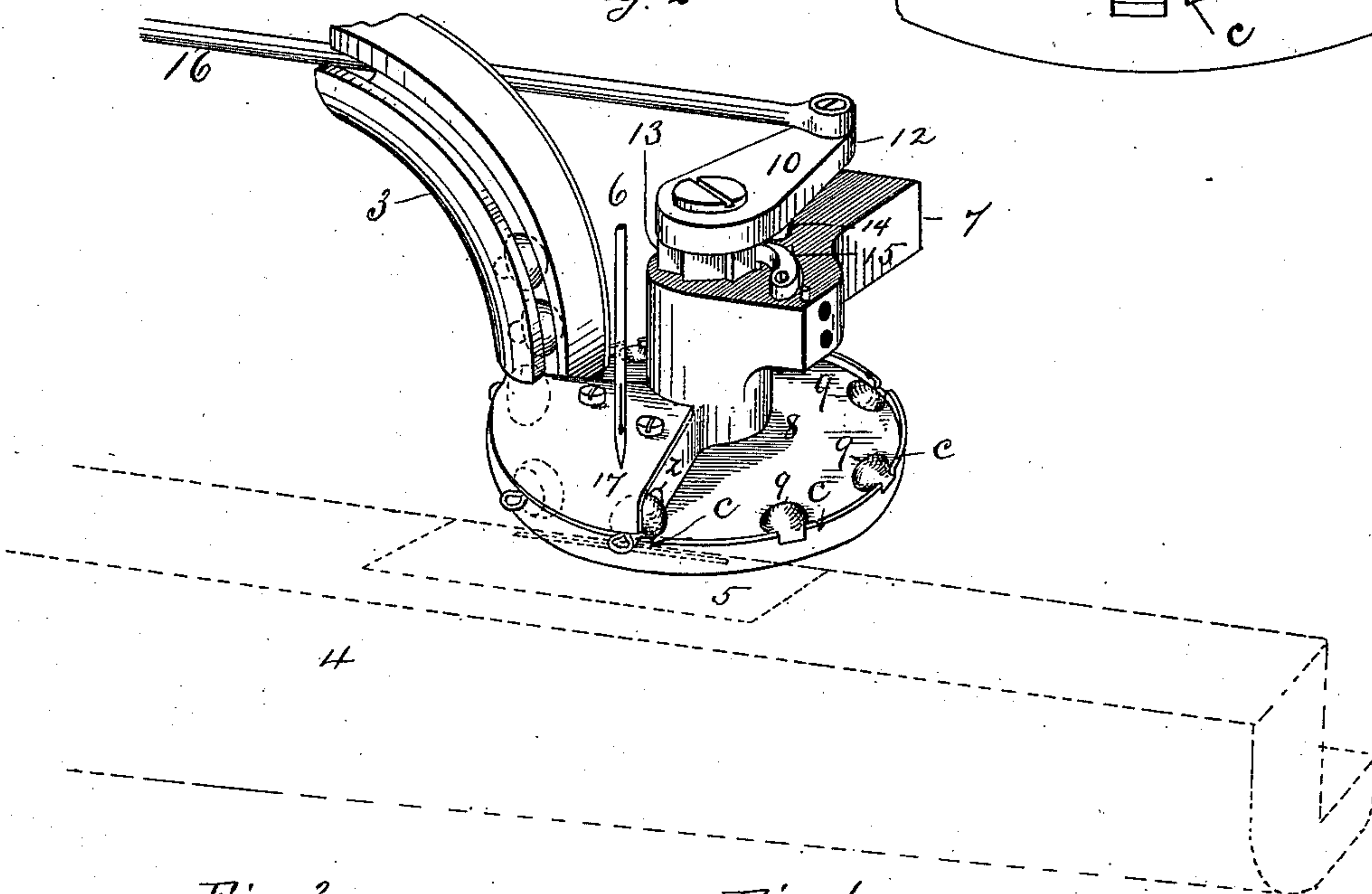


Fig 3

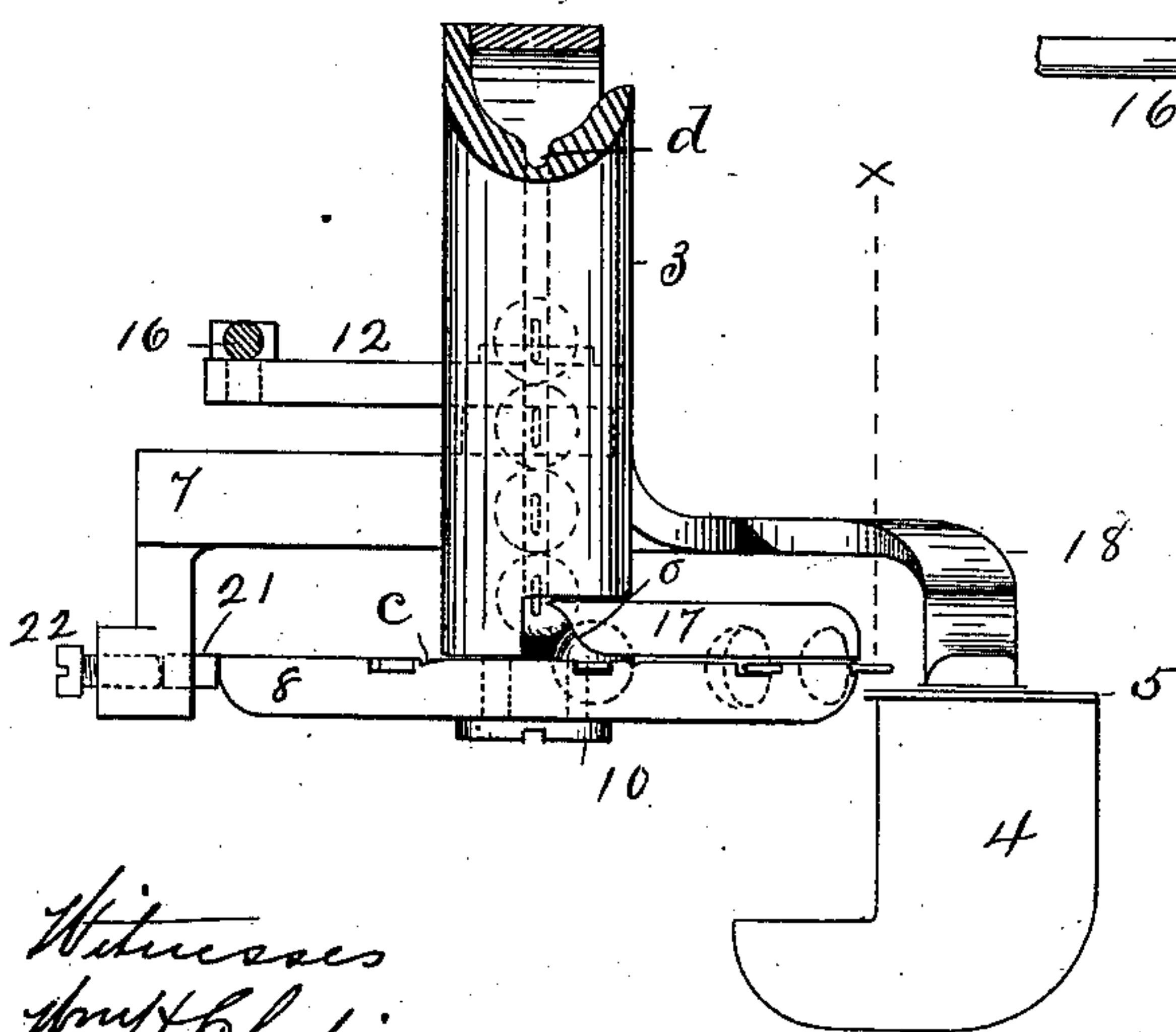
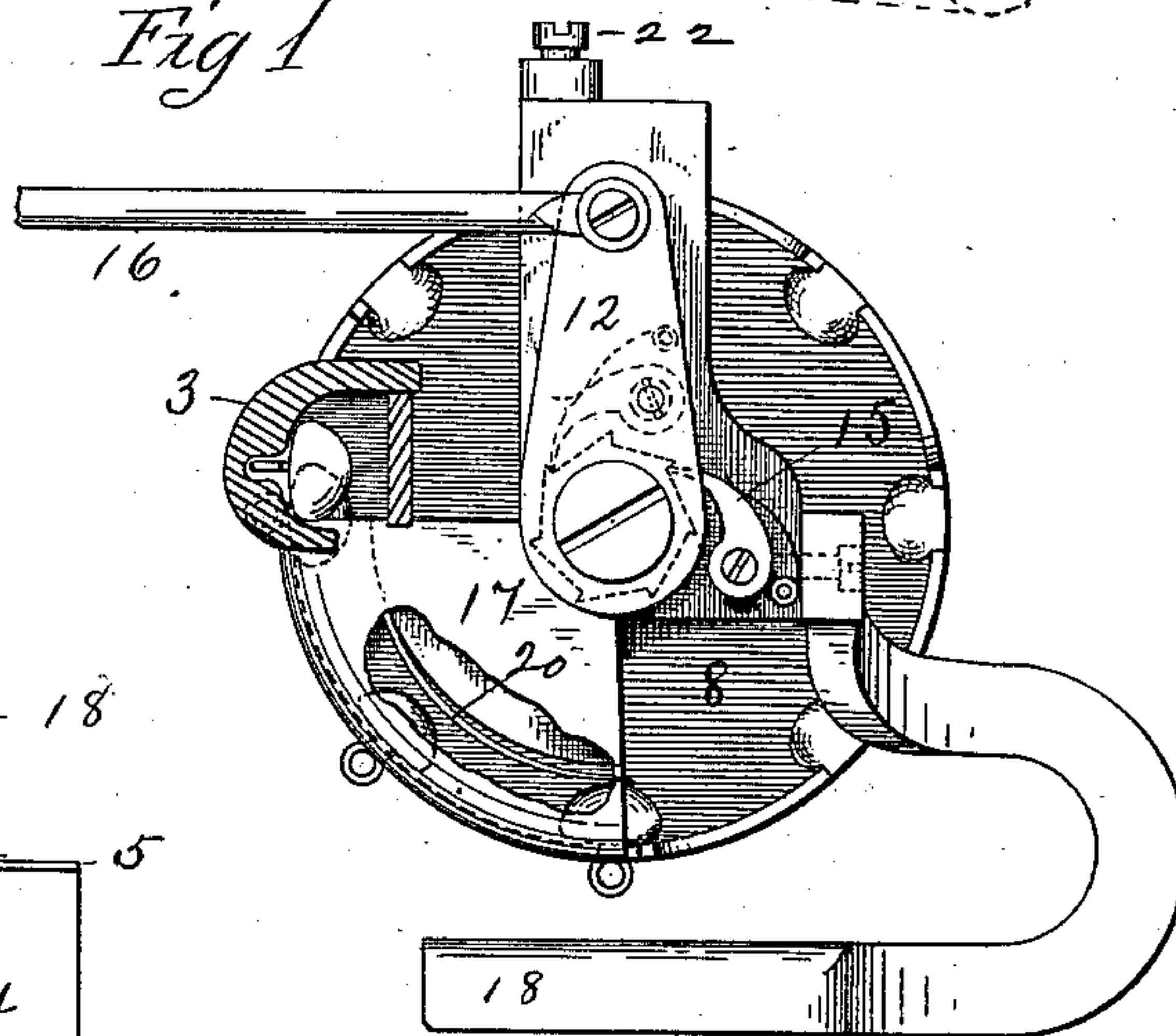


Fig 1



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(No Model.)

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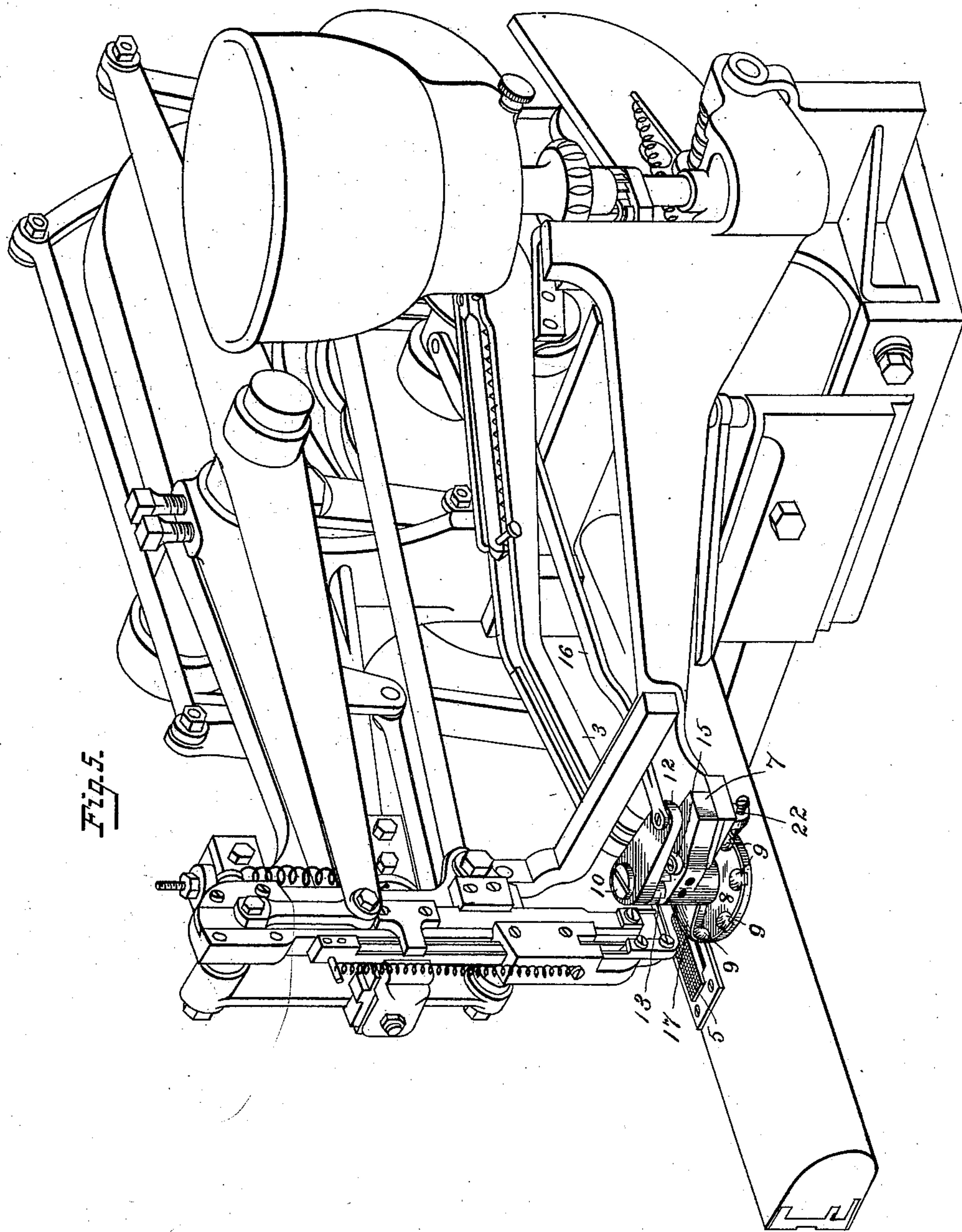


Fig. 5.

Attest:

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UNITED STATES PATENT OFFICE.

WALTER E. BENNETT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MORLEY BUTTON SEWING MACHINE COMPANY, OF SAME PLACE.

BUTTON-FEEDING DEVICE FOR BUTTON-SEWING MACHINES.

SPECIFICATION forming part of Letters Patent No. 373,330, dated November 15, 1887.

Application filed October 25, 1886. Serial No. 217,081. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. BENNETT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Button-Feeding Devices for Button-Sewing Machines, of which the following is a specification.

This invention relates to improvements in machines for attaching buttons to fabric; and the invention consists in improved devices for taking buttons from a hopper and for conveying them to a point where they are to be sewed onto the fabric, and for holding them in proper position for the needle while the latter sews them on, and including an improved presser-foot operating in connection with said devices.

In the drawings forming part of this specification, Figure 1 is a plan view of devices for moving buttons from the hopper-trough to the cloth-plate of a button-sewing machine constructed according to my invention, said figure showing a portion of the button-trough in transverse section, the improved presser-foot connected with said devices, and a portion of the rod which connects the devices with any suitable moving part of said machine, a part of the upper side of said devices being shown broken away. Fig. 2 is a perspective view of said devices, (the presser-foot being removed therefrom,) in which is shown a portion of the needle of a machine and the end of the horn of the latter in dotted lines. Said figure also shows the lower end of a button-trough having its end in operative position relative to said devices. Fig. 3 is a rear side elevation of said devices, the presser-foot, and a portion of the button-trough, showing a section of the horn of a machine and of the cloth-plate thereof. Fig. 4 is a perspective view of a segment of the button receiving and carrying plate. Fig. 5 is a perspective view of a button-sewing machine having my improvements applied thereto.

This invention relates to button-feeding devices which are more particularly applicable to button-sewing machines of the class shown in Patent No. 343,948, dated June 15, 1886, wherein are shown a horn on which the work is placed to be operated upon and on which

the cloth-plate is located, a button-hopper, and a trough conveying buttons from the latter, and mechanism to take buttons from said trough and carry them to a position over the cloth-plate and under the needle of the machine. 55

In the drawings, 3 indicates the lower end of a button-trough whose upper end may be connected to any suitable button-hopper and which is adapted to take buttons therefrom, said buttons sliding downward in a line in said trough, as indicated in Fig. 2, in which some of the buttons are shown. 60

In Fig. 2, 4 indicates in dotted lines the end of the horn of the machine, on which the cloth-plate is located at 5, said horn being shown in section, together with said cloth-plate in Fig. 3, as aforesaid. Said Figs. 2 and 3 clearly indicate the relative operative positions of the lower end of the button-trough and the horn of the machine, and they are both thus particularly referred to in order that the operation of said improvements may be more clearly understood, as the purpose thereof is to receive the buttons one by one from the end of the trough 3, turn the buttons one-quarter round, so that their shanks shall be brought to a horizontal plane, and present the latter at the edge of the cloth-plate and under the point of the needle 6, said devices holding the button in a fixed position while it is being sewed to the fabric, and having a motion in consonance with the feed-motion of the machine after the button is sewed on, so that there will be no unnecessary strain on either the needle or the stitch when the button is carried away from the button-holder. 85

The button-holding and moving devices are attached to an arm, 7, which is, by any suitable connection with a button-sewing machine, given a vertically-reciprocating motion to lift the button-holding devices when the material is fed along on the horn 4, and to drop them to bring the shank of the button against the fabric when the needle is to operate to sew on the button. 95

The lower end of the button-trough 3 is adapted to be retained in such connection constantly with the button holding and carrying devices, as is illustrated in the drawings, in order that the regular delivery of buttons 100

from the trough may not be interfered with by said vertical reciprocating movements of the button-holder; and, therefore, in practice, the button-hopper to which the said trough is attached is pivoted on the machine in the manner shown and described in said patent, to allow the end of the trough to move up and down with the button-holding devices. Said devices consist of an intermittently rotating circular plate, 8, having its edge turned slightly upward and having notches in the latter to receive the shanks of buttons, as shown in Fig. 2, and directly adjoining said notches in the upper side of said plate are recesses 9, to receive a portion of the button. The plate 8 is attached to the lower end of a shaft, 10, which passes through the end of the arm 7, said shaft having on its upper end a crank-arm, 12, capable of a free reciprocating rotary motion. A ratchet, 13, is fixed on the shaft 10 between said crank-arm and the upper side of the arm 7, and the latter has pivoted thereon, as shown in dotted lines in Fig. 1, a pawl, 14, which engages with the ratchet 13. A second pawl, 15, is pivoted on the upper side of the arm 7, which also engages with said ratchet for the purpose of preventing any backward movement of the shaft 10 and the plate 8 during the operation of the crank-arm 12. Said reciprocating motion is imparted to said crank-arm by its connection with any suitable moving part of a machine by means of a rod, 16, which is attached to the end of said arm. A plate, 17, in the form of a segment of a circle projects horizontally over a portion of the upper side of said plate 8, or over so much thereof as the button moves in going from the trough 3 to the cloth-plate, and plate 17 has a groove in its under side, (indicated by *z* in Fig. 2,) which groove is concentric with the circular border of the plate 8 and forms a channel which the buttons follow as they move from the trough to the cloth-plate.

In Fig. 3 is shown the junction of the lower end of the button-trough with one edge of said plate 17, wherein is shown that a part of the end of the button-trough 3 extends down to the border of the plate 8 and reaches sufficiently over said plate to deposit the buttons on the latter, and that one side of the end of the button-trough is cut away to permit the edge of the plate 17 to project under the end of the trough. That part of the edge of the plate 17 which projects under the end of the trough 3 is formed at an incline at *o*, as shown in Fig. 3, and room is left between said plate 17 and the adjoining vertical portion of the button-trough to permit the shank of a button to slide or move therebetween uninterruptedly, so that a button may freely drop from the trough onto the plate 8. A spring, 20, is secured at the rear side of the groove *z* in plate 17, to press against the button and insure the projection of its shank beyond said border, as shown in Fig. 1.

The presser-foot 18 is secured by one end to the side of the arm 7 and extends in a curved

form therefrom toward the end of the horn 4, and thence it is doubled upon itself and extends over the cloth-plate 5 in a line with said horn, as shown in Fig. 3, such form being given thereto to provide for the free action of the needle between the presser-foot and the border of the button-holding devices, and to provide for an unobstructed view of these sewing devices while they are in operation, said arrangement of the presser-foot (the latter receiving its usual vertical reciprocating motions from the arm 7, to which it is attached) obviating the inconveniences, so far as a clear view of the work is concerned, which pertain to the attachment of the presser-foot to the usual presser-foot bar.

In the edge of the plate 8, adjoining the notches therein in which the shank of the button lies, are formed other notches, *c*, which engage with the border of the button-shank when the button is about to leave the end of the trough, and thus facilitate the turning movement which is given to the button as it takes its place between the plates 8 and 17. An elastic pin, 21, preferably of leather, is held by a screw, 22, against the edge of the plate 8, to frictionally steady the motion of said plate.

The operation of my improvements is as follows: By reference to Fig. 3 it is seen that the trough 3 is provided with a groove, *d*, in which the shanks of the buttons hang as the latter move down toward the button-holding devices, and the curved form of said trough serves to bring each button, as it arrives at the end thereof, against the plate 8 with its shank standing in a vertical plane and extending slightly over the edge of said plate, as shown in Fig. 2. A rotary movement of plate 8, whereby one of the recesses therein is brought under the button, then causes the lower button to move sidewise away from the end of the trough, letting the succeeding button fall on plate 8, and the shank of said button is carried against the inclined edge *o* of the plate 17, and thereby the button is caused to be turned one-quarter over, so that its shank is brought to a horizontal plane within one of the notches in the edge of said plate 8, and the button then takes the position shown in Fig. 1, and the next movement of plate 8 carries the button under plate 17 and brings it to the position over the cloth-plate 5, (shown in Fig. 3,) where the line *x* indicates the track of the needle. The button is sewed on while it is held between the plates 8 and 17, and after said sewing the plate 8 again rotates, carrying the sewed-on button from under plate 17, (co-operating with the fabric-feeding devices of the machine,) and by the same movement another button is brought to a position under the needle. The aforesaid rotary movement of the plate 8 under the end of the trough causes the said notch *c* in the edge of said plate to engage with the border of the button-shank at the same time that the opposite or upper border of the shank strikes the said inclined edge *o* on the

plate 17, and thereby the prompt turning of the button is insured.

What I claim as my invention is—

1. A button carrier and holder for button-sewing machines, consisting of an intermittently-rotating plate having button-recesses in its surface and notches in its border to receive the button-shanks, and a fixed plate extending over and covering a portion of the surface of said rotating plate, having therein a button-groove opposite said button-recesses, substantially as set forth.

2. Button conveying and holding devices for button-sewing machines, consisting of an intermittently-rotating plate having button-recesses in its surface and notches in its border to receive the shanks of the buttons, and a button-carrying trough having its end terminating over said plate, combined with a fixed plate extending over and partially covering the surface of said rotating plate, having therein a button-groove opposite said button-recesses, and having one edge thereof extending partly under the end of said trough, substantially as set forth.

3. The plates 8 and 17, constituting means, substantially as described, for carrying and holding buttons in a button-sewing machine attached to a supporting-arm, 7, combined with a presser-foot attached also to said arm and extending opposite the borders of said plates and over the horn 4 of said machine having the cloth-plate thereon, substantially as set forth.

4. The supporting-arm 7, the plate 17, fixed to said arm, having a button-groove in its under side and its border at one end of said groove inclined, as at *o*, the plate 8, having button-recesses 9 in its surface and button-shank notches in its border attached to a shaft passing loosely through said arm, whereby it is secured opposite the plate 17, a ratchet secured on said shaft, a crank-arm loosely secured on the latter, having thereon a pawl engaging with said ratchet, and a button-trough communicating with said plates to deliver buttons on the plate 8 at one edge of the plate 17, combined and operating substantially as set forth.

5. Button conveying and holding devices for button-sewing machines, consisting of an intermittently-rotating plate having button-recesses in its surface and notches in its border to receive the shanks of the buttons, and a button-carrying trough having its end terminating over said plate, combined with a fixed plate extending over and partially covering the surface of said rotating plate, having therein a button-groove opposite said button-recesses, and having one edge thereof extending partly under the end of said trough, and a spring attached to the side of said button-groove to press against the buttons as they pass through it, substantially as set forth.

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Witnesses:

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