

(No Model.)

3 Sheets—Sheet 1.

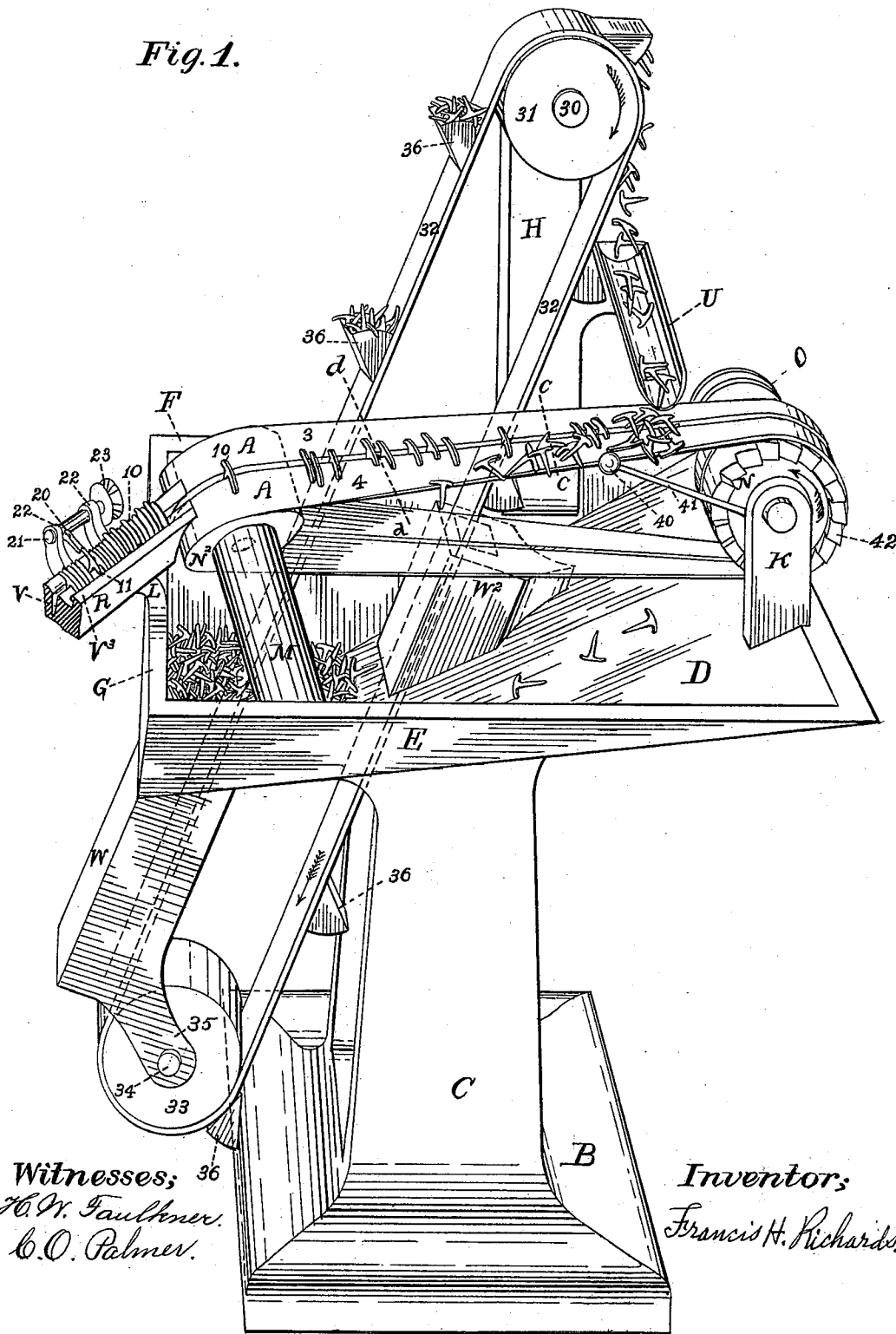
F. H. RICHARDS.

BUTTON FASTENER FEEDING MACHINE.

No. 326,246.

Patented Sept. 15, 1885.

Fig. 1.



(No Model.)

3 Sheets—Sheet 2.

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Fig. 7.

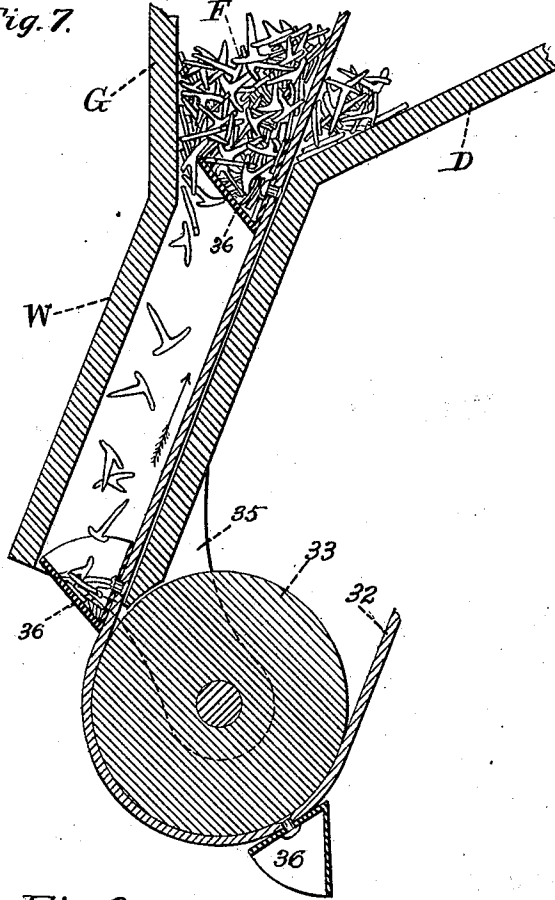


Fig. 3.

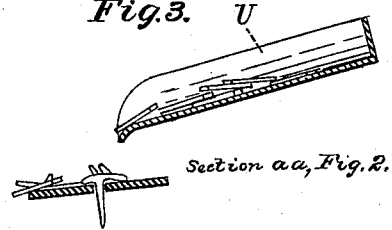


Fig. 4.



Fig. 5.



Fig. 6.

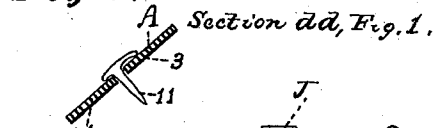


Fig. 8.

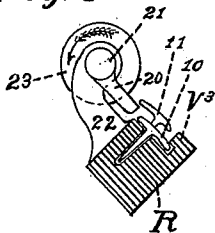
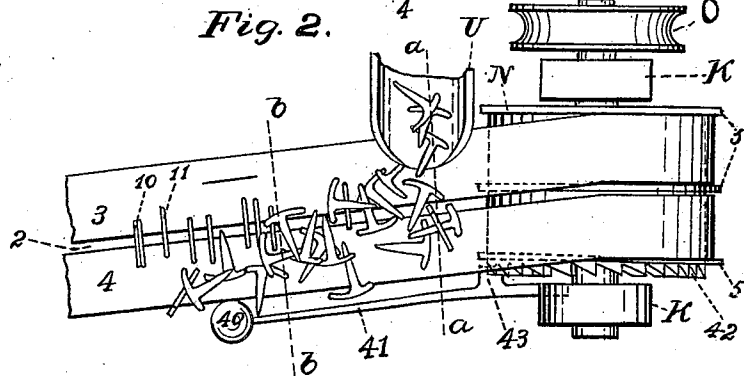


Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 9.

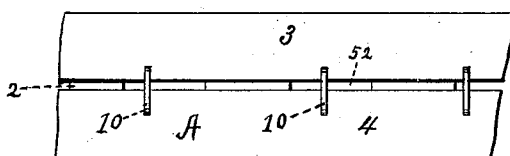


Fig. 11.

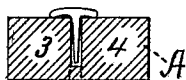


Fig. 10.

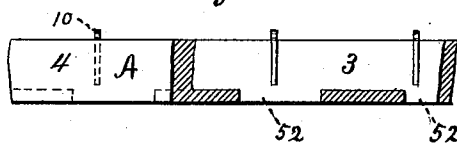
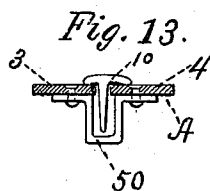
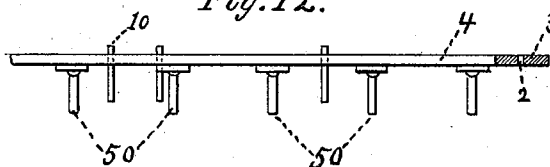


Fig. 12.



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UNITED STATES PATENT OFFICE.

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BUTTON-FASTENER-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 326,246, dated September 15, 1885.

Application filed December 26, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. RICHARDS, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Button-Fastener-Feeding Machines, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation in perspective of a machine embodying my improvements. Fig. 2 is an enlarged plan view of that end of the endless slotted apron which is at the right hand in Fig. 1. Figs. 3, 4, 5, and 6 are sections on the lines designated in those figures. Fig. 7 is an enlarged vertical section through the hopper-well. Fig. 8 is an end view of the fastener-receiving channel and the device thereon shown at the left hand of Fig. 1. Fig. 9 is a plan view of a portion of the endless apron, having a construction modified from that in the preceding figures. Fig. 10 is a side view, partially in section, of what is shown in Fig. 9. Fig. 11 is an end view of what is shown in Fig. 10 drawn in projection thereto. Figs. 12 and 13 are views similar to Figs. 10 and 11 of another modification of the construction of said apron.

Similar reference-characters designate similar parts in all the views.

This invention relates to improvements in machinery for feeding from a hopper into a fastener-receiving channel or magazine the kind of button-fasteners shown and described in application Serial No. 114,781, filed December 17, 1883.

The object of the invention is to provide a machine adapted to automatically feed said button-fasteners, or others substantially similar, into the said channel so that they will all rest therein in the same position.

To this end my invention consists in certain devices and combinations of mechanism, which will first be described in connection with the drawings and afterward particularly pointed out in the claims.

In the drawings, Figs. 1 to 8, inclusive, B designates the base and C the column of a frame-work for supporting the operative parts. At the top of the column said frame-work widens to form the bottom D of a hopper,

which has side walls, E F, end wall, G, lower well, W, upper well, W², and projecting parts H K K L M, for carrying the details. The posts K K carry the driving-shaft J, on which is the apron-driving drum N, and which is driven by a pulley, O, or other suitable means. At the opposite end of the frame-work a drum, N², similar to N, is supported in an oblique position by a stud (not shown) which is fixed to arm M. An endless apron, A, is carried on drums N and N², by the former of which drums this apron is driven. Said apron has a narrow space, 2, between the two parts 3 4 thereof, which corresponds with the widest part of the fastener-prongs. The drum N is preferably provided with flanges 5, Fig. 2, for guiding the parts of said apron. Similar guiding-flanges may be made on drum N², if it is found desirable to do so.

A fastener-receiving channel, R, is supported by ear L at the left-hand end of the endless apron, (see Fig. 1,) and so accurately fitted to the part of said apron which is on drum N² that the fasteners carried over this drum will slide off into said channel, which is preferably set in an inclined position to facilitate that result. For this channel I prefer to use the magazine M described and claimed in my previous application, No. 142,969, filed September 13, 1884, to which reference may be had, which said magazine is substantially the same as the said channel R. Fasteners coming into this channel with the long end of their heads pointing downward, as at 10, pass along unmolested, rib V³, projecting over said long ends, serving to hold those fasteners in place; but if any fasteners come into the channel with their heads reversed, as at Figs. 1, 2, 6, and 8, then said long ends project over the upper edge of the channel, and these fasteners are thrown out by a separating device, as illustrated in Figs. 1 and 8. This device consists of a finger, 20, supported and operated in such a way as to strike on the under side of the heads of those fasteners which are wrongly placed and drive them out of the channel. I prefer to support and operate said finger as follows: The finger 20 is fixed to a shaft, 21, which is carried on bearings 22, which bearings are fixed the channel R or to some part of the frame-

work. Said shaft is rotated by means of a belt (not shown) running over a pulley, 23, fixed on this shaft.

The post H carries a driving-shaft, 30, which may be driven by a pulley and belt, (not shown,) in the usual manner. Said shaft carries drum 31, for driving the endless conveyer-belt 32, which belt passes down through the well W² and up through well W, and at the lower end runs over the drum 33, which is similar to drum 31. Said drum 33 is carried on a shaft, 34, supported in bearings 35, which project from well W. A series of buckets, 36, which fit the said well closely, are secured to belt 32, so that one of them will enter the bottom of well W before the next one above emerges therefrom into the hopper, which arrangement is fully shown in Fig. 7. As they pass up through the mass of button-fasteners F, each bucket carries up a charge of the fasteners and dumps them onto the endless apron or into a spout, U, which leads onto said apron. (See Figs. 1, 2, and 3.)

As the efficiency of the machine may be increased by imparting a suitable vibratory or shaking motion to the apron, I have provided a device for producing that effect. This device consists of a hammer or beater, 40, fixed on a spring-handle, 41, which handle is supported by post K, and is operated by cams 42 acting against a projection, 43, Fig. 2, on said handle.

It will be understood that the speed at which the conveyer should run depends on the number and capacity of its buckets and the capacity of the other mechanism to properly dispose of the fasteners; also, that the relative velocities of the several parts are to be adjusted agreeably to the kind of fasteners for the feeding of which the machine is used.

It should be understood, also, that the endless apron A is not necessarily a divided one, but may have its two parts 3 and 4 formed of a single piece or united by any suitable connecting devices. When it is made of sufficiently flexible and elastic material, and especially if it runs over wheels of considerable size, this apron may be a thick one, and the said slot 2 be merely a groove formed therein, as in Figs. 9, 10, and 11; or if the apron is thin and made separate throughout, it may then be united at proper distances by a series of ties—such, for instance, as shown at 50, Figs. 12 and 13. In case this form of apron is used, of course the drums N and N², over which it runs, must be grooved to permit the passage of said ties. In Figs. 9 to 11, 52 designates openings through which fasteners wrongly placed in the slot may fall into the

In other applications, Serial Nos. 148,978 and 151,269, I have shown and described endless belts which are more or less similar to that described in this application; but I do not intend to claim herein anything claimed in those said applications.

The operation of my improved button-fastener-feeding machine will be readily understood from the drawings and the preceding description, being as follows: The machinery being properly started up, a quantity of fasteners, substantially such as described, are thrown into the hopper in a mass, which mass then slides down in said hopper around belt 32 at the top of well W. The buckets 36 of that belt take up the fasteners and deliver them into a spout, U, which conducts them onto the endless apron A. As they fall from the spout, some of the fasteners fall through slot 2 into the hopper. Others fall with their prongs in said slot, while still others lie on the apron in a promiscuous manner, and are shaken into said slot or slide over the side of the apron into the hopper at some point between the spout and drum N², as in Fig. 5. Of those fasteners caught in the slot some fall with their heads in one position, as shown at 10, and some stand reversed, as in Figs. 3 and 6, these being ultimately thrown out by finger 20, as at 11, Figs. 1 and 8.

Having thus described my invention, I claim—

1. The combination of an endless apron having a continuous slot, substantially as described, mechanism for supporting and operating said apron, means, substantially as described, for supplying button-fasteners to said apron, and a channel for receiving fasteners from said apron, all arranged to operate substantially as specified.

2. In a button-fastener-feeding machine, the combination of the channel R, finger 20, and mechanism for operating said finger, substantially as described.

3. In a button-fastener-feeding machine, the combination of the endless apron A, divided into two parts, 3 and 4, drum N, having flanges 5, one of which runs between said two parts 3 and 4, and drum N², substantially as described, and for the purpose specified.

4. The combination of the traveling endless slotted apron A, hammer 40, and mechanism for operating said hammer, substantially as described, and for the purpose specified.

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Witnesses:

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