Oct. 16, 1934. F. A. EICH 1,976,718

FASTENING SUPPLYING APPARATUS

Filed March 30, 1932

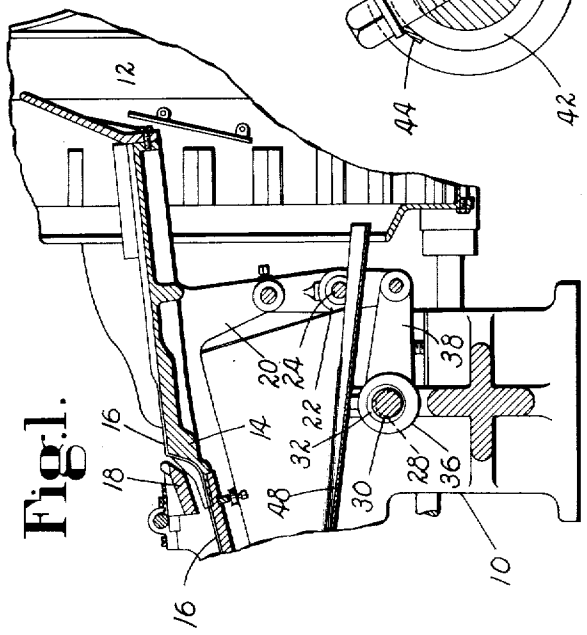



Fig. 1.

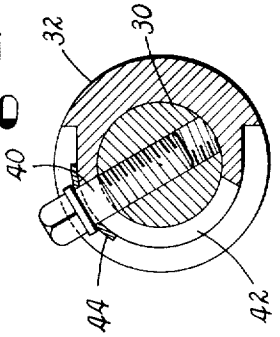



Fig. 4.

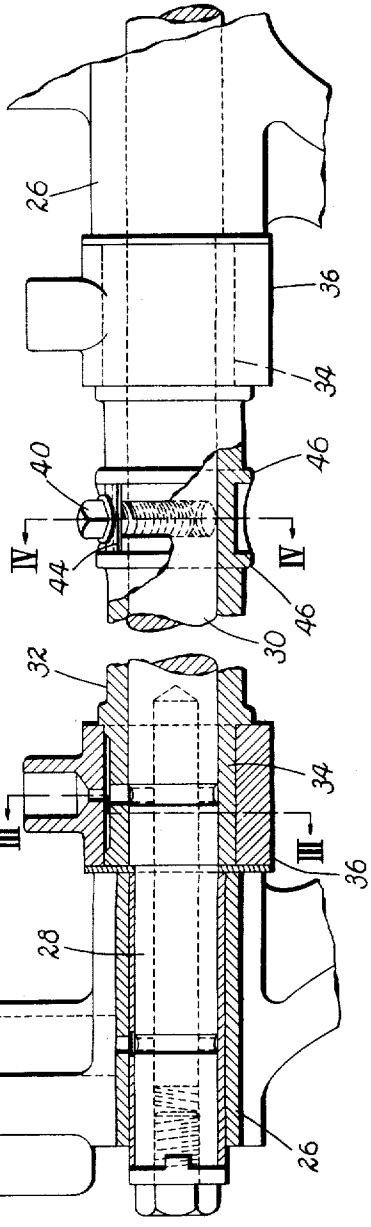



Fig. 2.

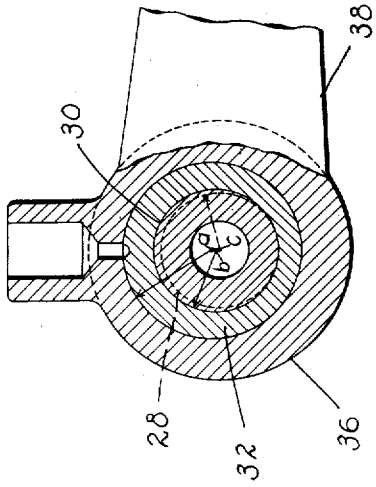



Fig. 3.

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# UNITED STATES PATENT OFFICE

1,976,718

## FASTENING-SUPPLYING APPARATUS

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3 Claims. (Cl. 1—39)

My invention relates to apparatus for supplying fastenings, it being especially applicable to the distributors which deliver successive loads of nails to the driving mechanisms of heel-attaching machines.

Nails for securing heels to shoes vary considerably in length, this dimension depending upon the height of the heels to be attached. If the raceway of a nail-distributor is so oscillated that the rate of advance of the nails is correct for the shorter of these nails, it may be insufficient for the longer, and loads will be missed or the operator of the heeling machine delayed by the failure of the discharge device to deliver at the time he wishes to use a load. On the other hand, if the shake of the raceway is such as to create the proper feed for long nails, it tends to be sufficiently violent to displace the light, short nails, causing them to clog and to waste unduly. An object of this invention is to produce a movement of the raceway which will correspond to the force necessary to effectively advance the particular length of nail being fed. For this purpose, I combine with a movable raceway for nails or other fastenings and actuating means for said raceway, means arranged to vary the distance through which the raceway is moved by the actuating means. I prefer to employ for the actuating means a driving shaft with an integral eccentric-portion surrounded by an eccentric-sleeve variable in position upon the eccentric-portion of the shaft to alter the throw. In the sleeve is an arcuate slot, with a clamping screw extending through the slot and being threaded into the shaft, the screw being provided with a head for exerting pressure against the sleeve. To the sleeve the raceway may be connected by one or more eccentric-rods. The sleeve is shown as having spaced eccentrics connected to opposite sides of the raceway. With such an organization, an extent of raceway-travel may be chosen which will give the necessary rate of advance of the nails conveyed, yet without introducing a jar by the reversal of the oscillating structure which will interfere with the orderly feed. This effect is obtained without disturbing the rate of movement of other elements of the distributor, as the nail-drum and discharge device, so, regardless of the precise manner in which the adjustment of the raceway-travel is effected, a regular supply and delivery may be maintained for all nail-lenths.

The preferred embodiment of my invention is illustrated in the accompanying drawing, in which

Fig. 1 is a vertical longitudinal section through a portion of a nail-distributor including my improved raceway-actuating means;

Fig. 2, a broken view of the actuating means, it being partly a front elevation and partly a vertical section;

Fig. 3, a full enlarged section upon the line III—III of Fig. 2; and

Fig. 4, a similar view upon the line IV—IV of Fig. 2.

The general distributor organization to which my invention is shown as applied may be that of Letters Patent of the United States No. 1,005,393, Pope, October 10, 1911. Rotatable upon a frame 10 appears a nail-drum 12, which elevates nails from a mass which it contains and delivers them to an inclined oscillatory raceway 14 containing parallel grooves 16, along which nails travel. These nails are turned, when necessary, heads foremost by a balancing bar 18, and finally fed to the machine to be supplied in successive loads by a discharge device, which is not included in the drawing. The raceway has depending arms, one of which is shown at 20, by which it is supported upon rocker-levers 22 secured upon transverse shafts turning in the frame, one of these shafts appearing at 24.

Journaled transversely of the frame in bearings 26, 26 is a driving shaft 28. Between the bearings, this shaft has formed upon it an extended portion 30, which is eccentric with respect to the ends or bearing-portions. Surrounding the eccentric-portion 30 is a sleeve 32 having formed near each end, adjacent to the bearings, short, external eccentric-portions 34, 34. About each of the eccentrics 34 is the strap 36 of an eccentric-rod 38 pivoted to the lower arm of one of the levers 22 with which it is longitudinally alined. The eccentric-sleeve 32 may be secured in different angular positions about the eccentric-shaft-portion 30 by a clamping screw 40 passing through an arcuate slot 42 in the sleeve and threaded into the shaft. The head of the screw is shown as bearing upon a retaining washer 44, which contacts with the exterior of the sleeve between circumferential flanges 46, 46.

As illustrated in Fig. 3 of the drawing, the sleeve 32 is fixed in place upon the shaft 28 with its axis *a* so situated that all its eccentricity is added to that of the shaft-portion 30, the axis of which is identified by the letter *b*. This will oscillate the rocker-levers 32 and the raceways 14 to give the maximum throw and rate of movement, and is employed to impart to long nails

the necessary speed of advance down the raceway-grooves 16. If this, for shorter nails, tends to displace them in the grooves so they ride over one another and waste into the return-chute 48 of the distributor, the screw 40 may be loosened, and the sleeve 32 turned about the shaft-portion 30. This causes the axis *a* to shift about the axis *b* toward the opposite side of axis *c* of the bearing-portions 28 of the shaft, so the eccentricity of the sleeve-portions 34 is, to a greater or less extent, subtracted from that of the shaft-portion 30. When the throw of the compound eccentric has been reduced to the desired amount, the screw 40 is again tightened to clamp the sleeve in place. The adjustment may be utilized not only to feed nails of different lengths to the best advantage, but also to correct for wear in the apparatus. After nail-distributors have been in use for some time, play may develop in the raceway-supports, so, when the raceway is reversed in its oscillation, the shock produced by the momentum of the loose parts tends to have the same influence upon the nails as would too great a throw. This may readily be compensated for by reducing the eccentricity, without the expense and delay which would be incurred by bushing or otherwise taking up the wear. The eccentric-adjustment affects only the extent of oscillation of the raceway and the rate of advance of the nails thereover. The nail-drum turns at the same speed, and the discharge device operates without change. The quantity of nails delivered to the raceway and the rate at which the loads are supplied to the heeling machine remain unchanged, and can be so fixed that the delivery to the raceway is ample and the operator will always find nails in the loader-block ready for use.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a nail-distributor, an oscillatory raceway, a driving shaft provided with an integral eccentric-portion, an eccentric-sleeve surrounding the eccentric-portion of the shaft and being movable circumferentially thereupon, said eccentric-sleeve having an arcuate slot, a clamping screw extending through the slot and being threaded into the shaft, the screw being provided with a head for exerting pressure against the sleeve, and connections including an eccentric-rod between the sleeve and raceway.

2. In a nail-distributor, an oscillatory raceway, a driving shaft provided with an extended eccentric-portion, a sleeve surrounding said extended portion of the shaft and having upon it spaced eccentrics, an eccentric-rod co-operating with each of said spaced eccentrics, and connections between said rods and opposite sides of the raceway.

3. In a fastening-supplying apparatus, a rotatable fastening-container, a rotatable driving shaft, connections to the driving shaft for rotating the container continuously at a constant speed during the operation of the apparatus, an oscillatory raceway, an eccentric movable upon the driving shaft and connected to the raceway, and means arranged to vary the eccentricity of the eccentric while maintaining constant the rate of rotation imparted by the driving shaft to the container.

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