

No. 862,475.

PATENTED AUG. 6, 1907.

D. H. HAYWOOD.
PROCESS FOR MANUFACTURING HAIR PINS.
APPLICATION FILED NOV. 23, 1906.

Fig. 1,

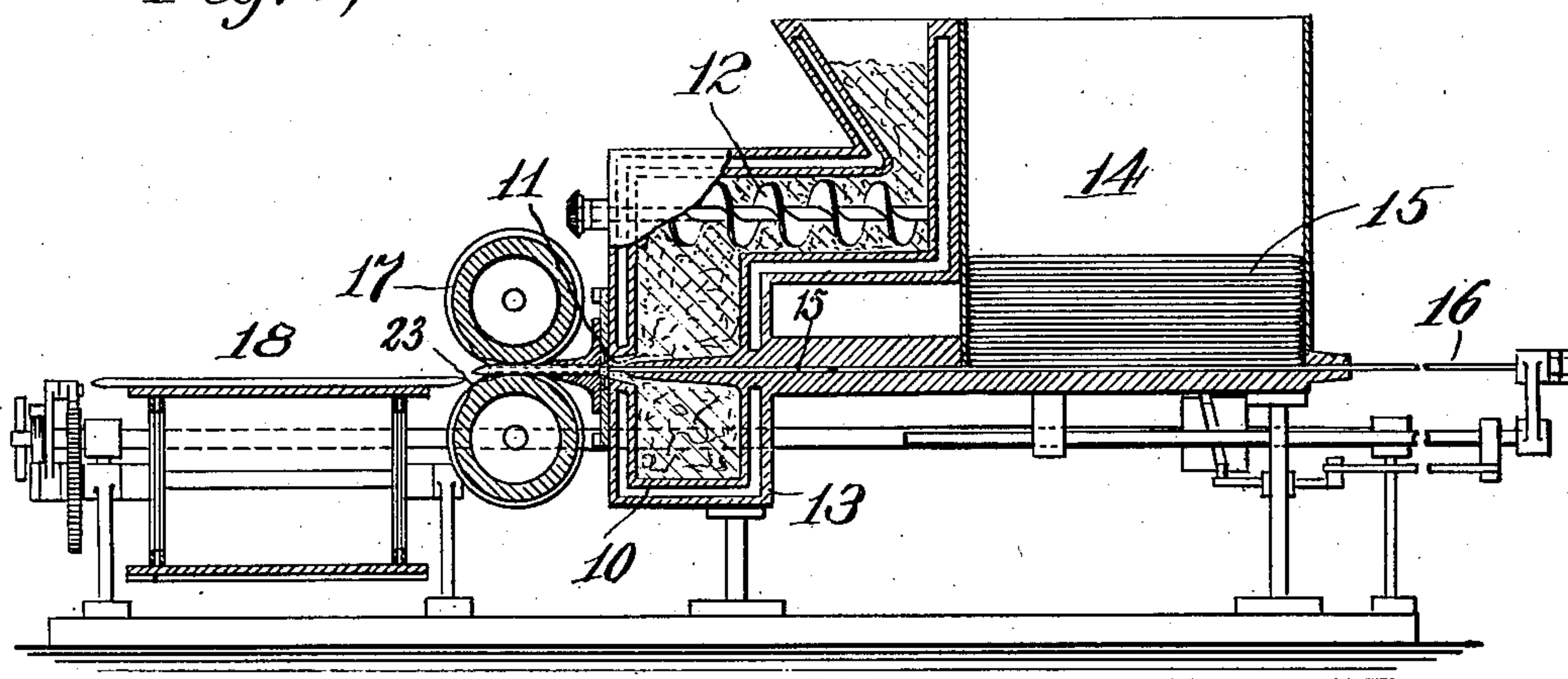


Fig. 3,

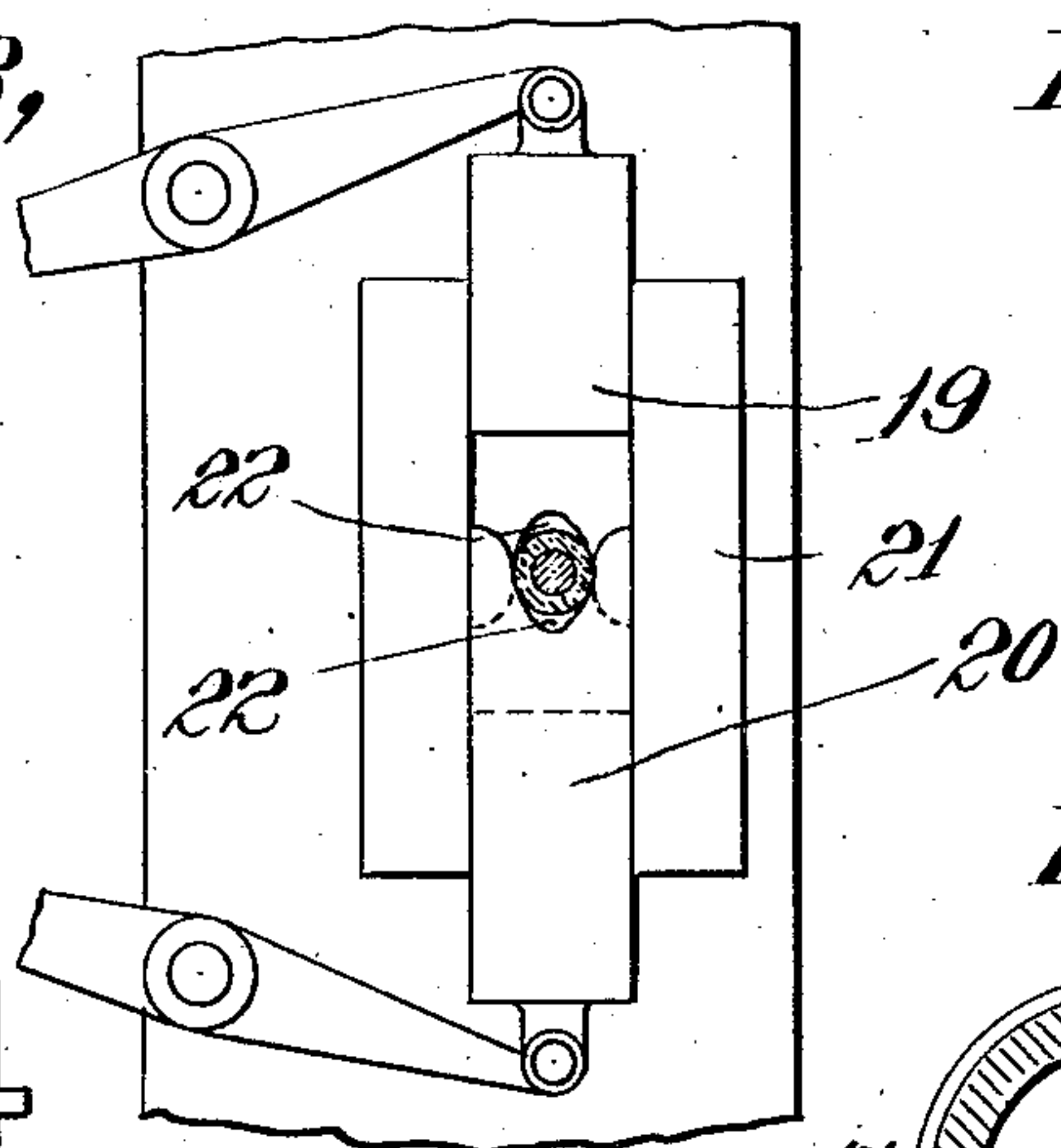


Fig. 4,

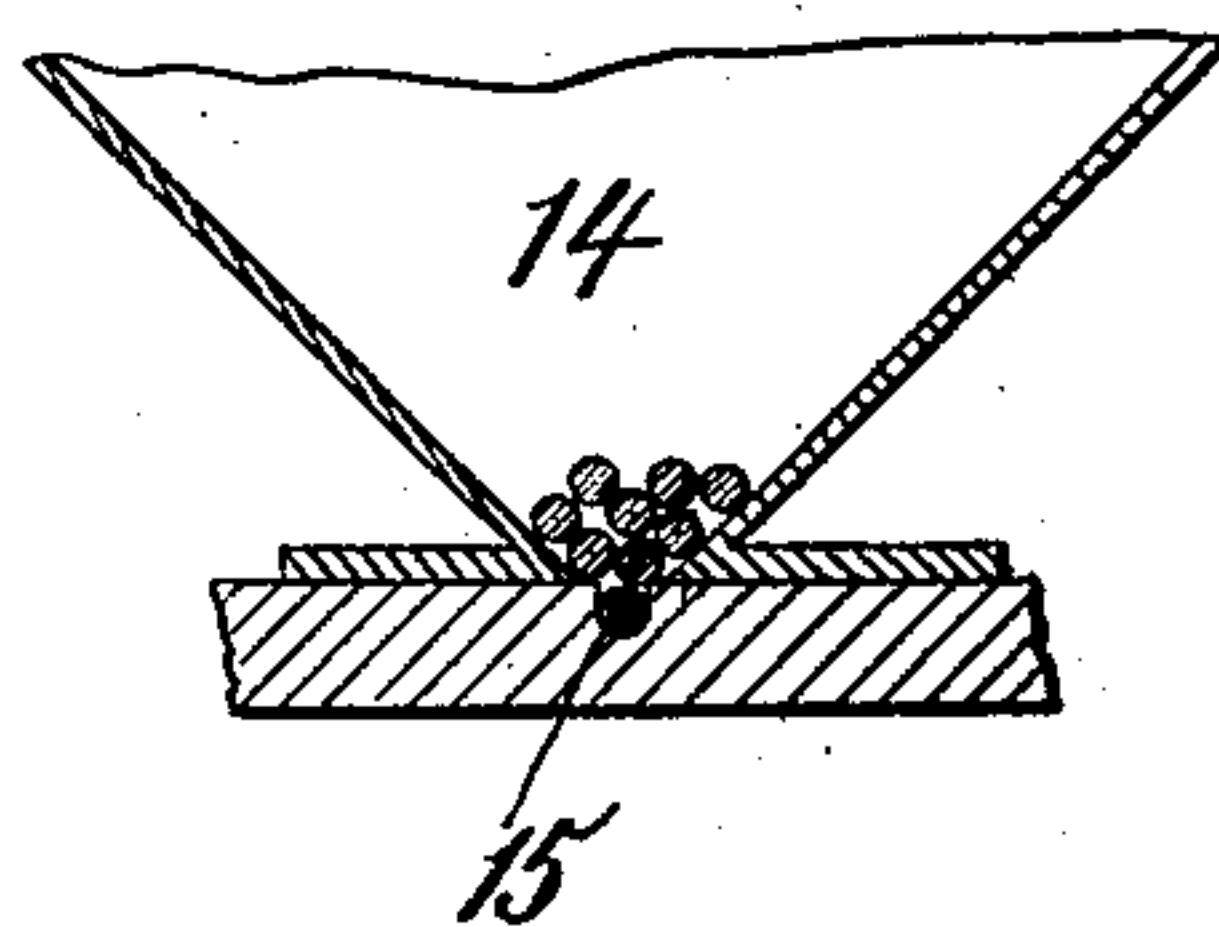


Fig. 6,

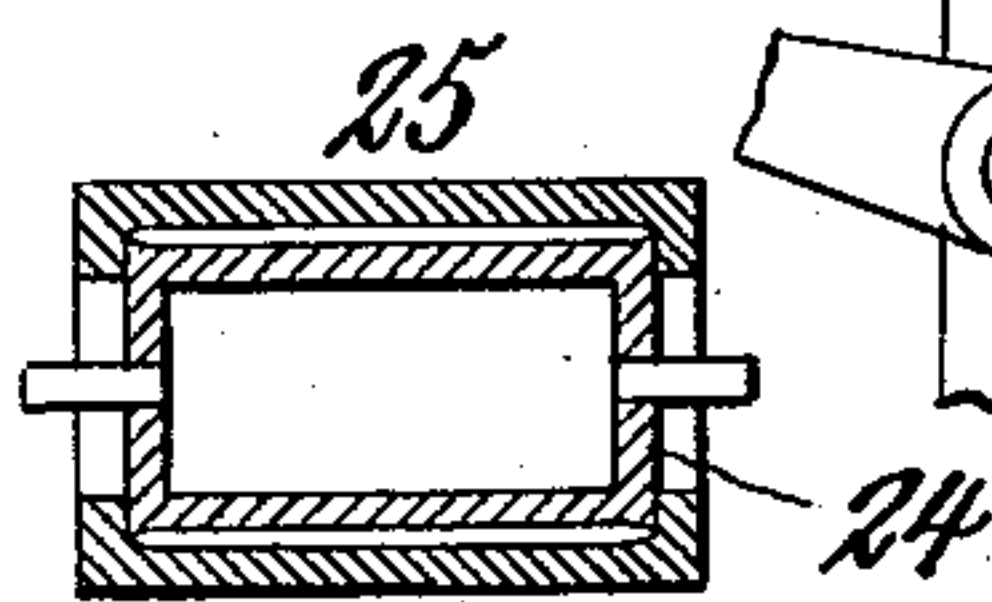


Fig. 2,

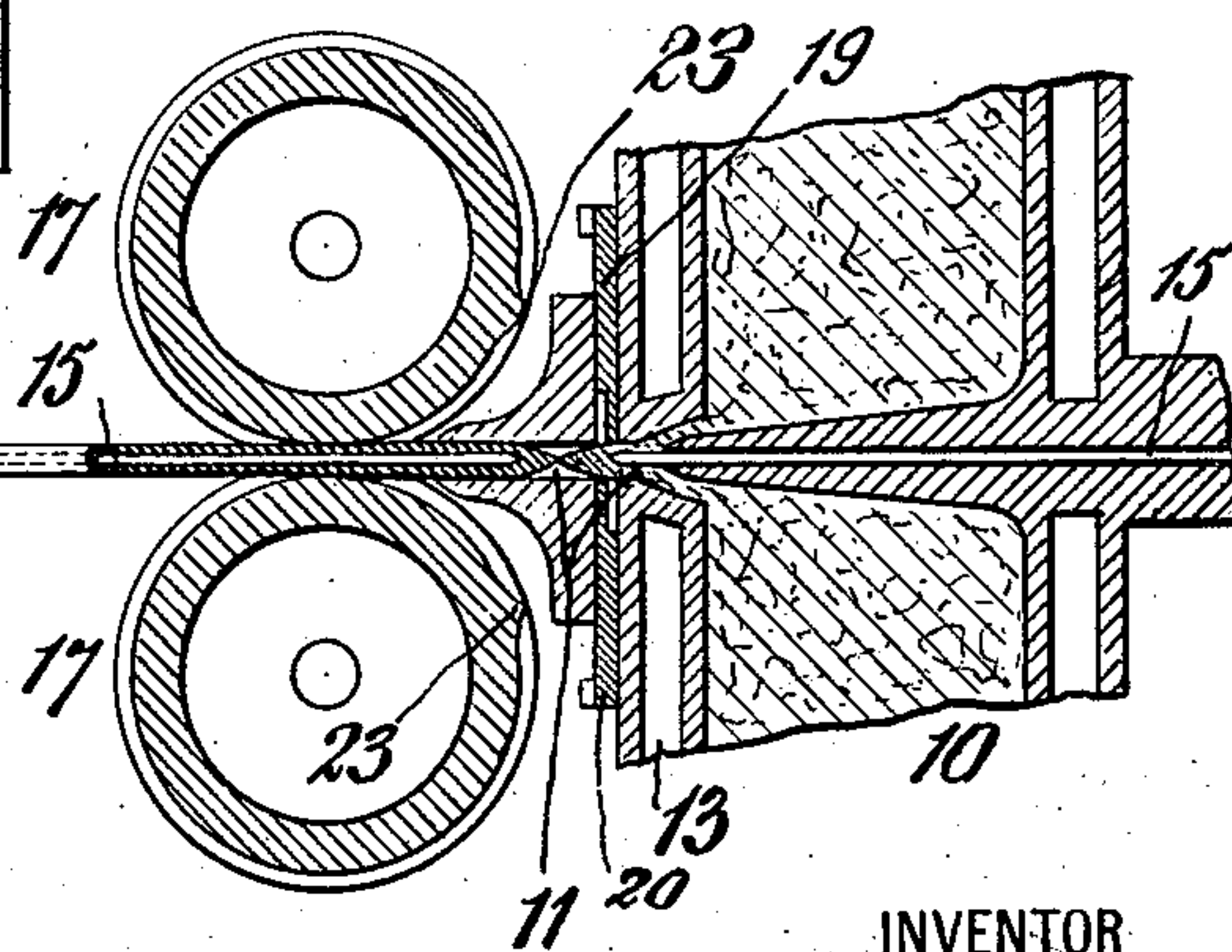


Fig. 7,

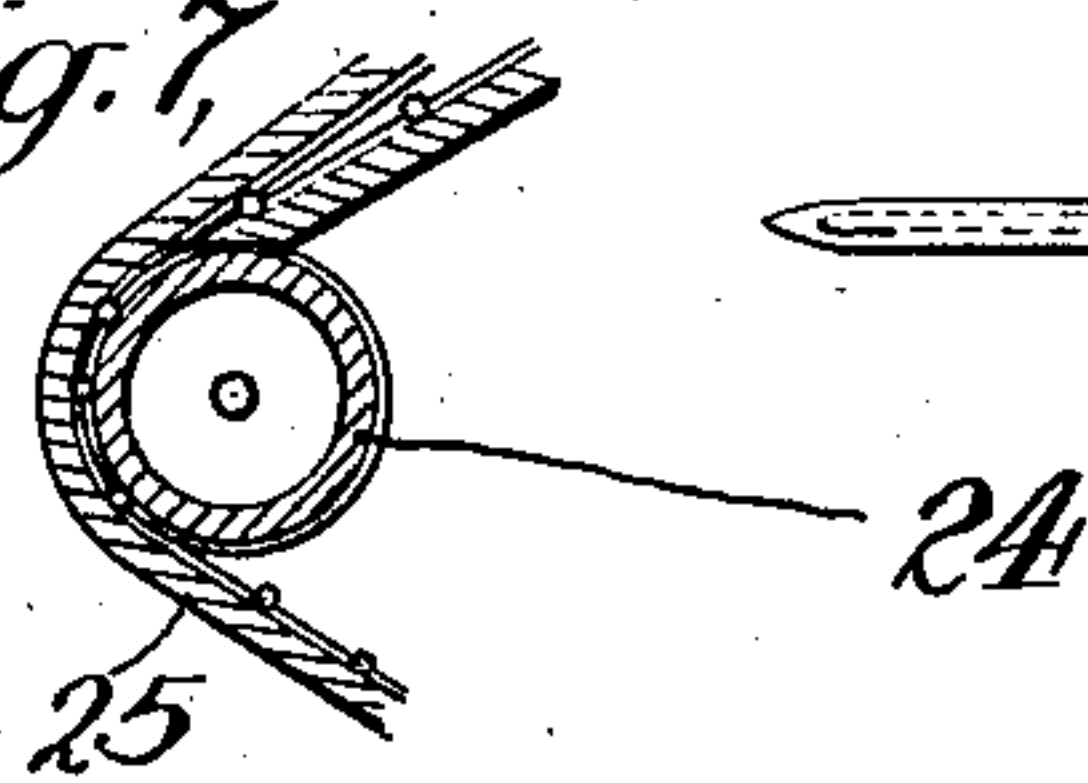


Fig. 5,

WITNESSES:

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PROCESS FOR MANUFACTURING HAIR-PINS.

No. 862,475.

Specification of Letters Patent.

Patented Aug. 6, 1907.

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To all whom it may concern:

Be it known that I, DANIEL HOWARD HAYWOOD, a citizen of the United States of America, and a resident of New York city, county, and State, have invented certain new and useful Improvements in a Process for Manufacturing Hair-Pins, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to an improved process and apparatus for manufacturing hair pins, and particularly to a process for the manufacture of that kind of hair pin which is composed of a central metallic core and an outside covering of a material which is plastic during the course of manufacture.

My invention consists broadly in feeding the central cores successively, and with short intervening spaces between their adjacent ends, through a die, and in simultaneously squirting plastic material through the said die around the said core. The units may be separated either during the process of manufacture or later, by severing them at points between the adjacent core ends, and the plastic material may be formed or pointed around the core ends during the process of manufacture by momentarily reducing the size of the die opening, as will be fully set forth in the particular description of the invention which follows. After the units have been thus formed and separated they may conveniently be rolled up by passing them between members which roll them in a direction transverse of their axes, where- by a good finish may be produced, and, finally, the units may be bent into the proper form to constitute finished hair pins.

In order that my invention may be fully understood, I will now describe in detail a process in which the said invention is embodied, and will also describe an apparatus in which said process may conveniently be carried out.

The apparatus is illustrated in the accompanying drawings, in which:

Figure 1 is a view in central longitudinal section therethrough. Fig. 2 is an enlarged detail view in central longitudinal section through the die and certain contiguous and co-related parts. Fig. 3 is a detail face view of the means employed for varying the size of the die opening to form the ends of the units and to sever the units one from another. Fig. 4 is a view in transverse section through the feed hopper. Fig. 5 is a detail view in longitudinal section through a strip of the material, showing the same as it appears when fed through the die opening without varying the size of the die opening. In this form the units will be severed after the strip has been completely formed. Figs. 6 and 7 are detail views respectively in longitudinal and transverse section of the means employed for rolling up and finishing the units after they have come from the die.

First describing the apparatus: the same, as herein shown, comprises a receiver 10 having a die opening 11 therein, and provided with a screw conveyer 12 by means of which material may be forced into the said receiver and through the die opening 11. The receiver is jacketed as at 13, whereby heat may be applied to maintain the material in the receiver in a plastic condition.

At the rear of the receiver is a feed hopper 14 arranged as a magazine for pointed wires 15, which are to be employed as the metallic cores of the hair pins to be manufactured. A feed plunger 16 is provided, having suitable means for reciprocating same, said plunger being arranged to feed cores from the magazine 14 to and through the die opening 11. Immediately in advance of the die opening 11 is a pair of rollers 17, which are arranged to receive the hair pin units as they pass out from the die 11, and to continue the feed during the return portion of the reciprocating movement of the plunger 16. The plunger 16 is timed so as to feed the cores 15 forward with intervening spaces between the adjacent ends of the said cores, that is to say, with intervening spaces between the rear end of the advance core and the forward end of the core which follows it. In front of the rollers 17 is a transverse conveyer 18 arranged to receive the units as they are delivered from the rolls 17, and to carry them away to any suitable place.

The preferred material which I employ as a covering to the cores 14, and which is hence contained in the receiver 10, is celluloid, said celluloid being kept in a plastic condition by means of the heat conveyed to the receiver through the jacket 13. The operation of the conveyer 12 simultaneously with the feeding of the cores through the die opening 11 will cause the plastic celluloid to be squirted through the said die opening around the cores to produce a cylinder comprising the central metallic core and a covering of the celluloid. In order to sever the units at points between the ends of adjacent cores, and also, if desired, to form or point the covering material around the core ends, I provide means for varying the size of the die opening, herein shown as comprising plates 19, 20 mounted in slides 21, and having openings 22 of substantially the form and character shown in Fig. 3. Suitable means are provided for reciprocating the plates toward and away from each other, the effect being to contract the amount of the opening between the parts 22, and finally to close it altogether if desired. Plates of this character will therefore, if properly manipulated, not only form and point the plastic material around the pointed ends of the cores, but will also sever the material at this point, so that the product will be delivered in the form of a plurality of units.

The rollers 17 may be conveniently provided with projecting portions 23 which tend in their operation to

correct any inequalities in form and shape which may have occurred at the ends of the units, the said portions operating upon the plastic material before it is entirely hard. The rollers 17 may themselves be heated if desired. After the units have thus been formed, the covering will be allowed to harden, and may, in fact, then be cured in any desired manner and by any of the methods of curing celluloid commonly in use in the present day. An additional finish may be given to the units by rolling them up transversely between a rotating forming roller 24 and a stationary forming member 25, such as is shown in Figs. 6 and 7. This will insure perfect truth, uniformity and smoothness of finish. After this operation the units may be suitably bent to form them into the desired shape of hair pins, this operation being unnecessary of further description herein, being well understood and forming no part *per se* of the present invention.

What I claim is:

1. The herein described process which consists in feeding hair pin cores successively and with short intervening spaces between their adjacent ends, through a die, in simultaneously squirting plastic material through the said die around the said cores, and in forming the said material into a point around the core ends by varying the size of the die opening as the ends of the cores pass through.

2. The herein described process which consists in feeding hair pins successively and with short intervening spaces between their adjacent ends, through a die, and in simultaneously squirting plastic material through the said die around the said cores, in forming the said plastic material over the core ends by varying the size of the die opening as the ends of the cores pass through and in severing successive units, and in then rolling the said units transversely between forming members.

3. The herein described process which consists in feeding hair pin cores successively and with short intervening spaces between their adjacent ends, through a heated die, in simultaneously squirting celluloid in a plastic condition through the said die around the said cores, and in forming the said material into a point around the core ends by varying the size of the die opening as the ends of the cores pass through.

4. The herein described process which consists in feeding hair pins successively and with short intervening spaces between their adjacent ends, through a heated die, and in simultaneously squirting celluloid in a plastic condition through the said die around the said cores, in forming the said plastic material over the core ends by varying the size of the die opening as the ends of the cores pass through and in severing successive units, and in then rolling the said units transversely between forming members.

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Witnesses:

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