

No. 811,840.

PATENTED FEB. 6, 1906.

P. R. GLASS.
HOOK SETTING MACHINE.
APPLICATION FILED OCT. 3, 1904.

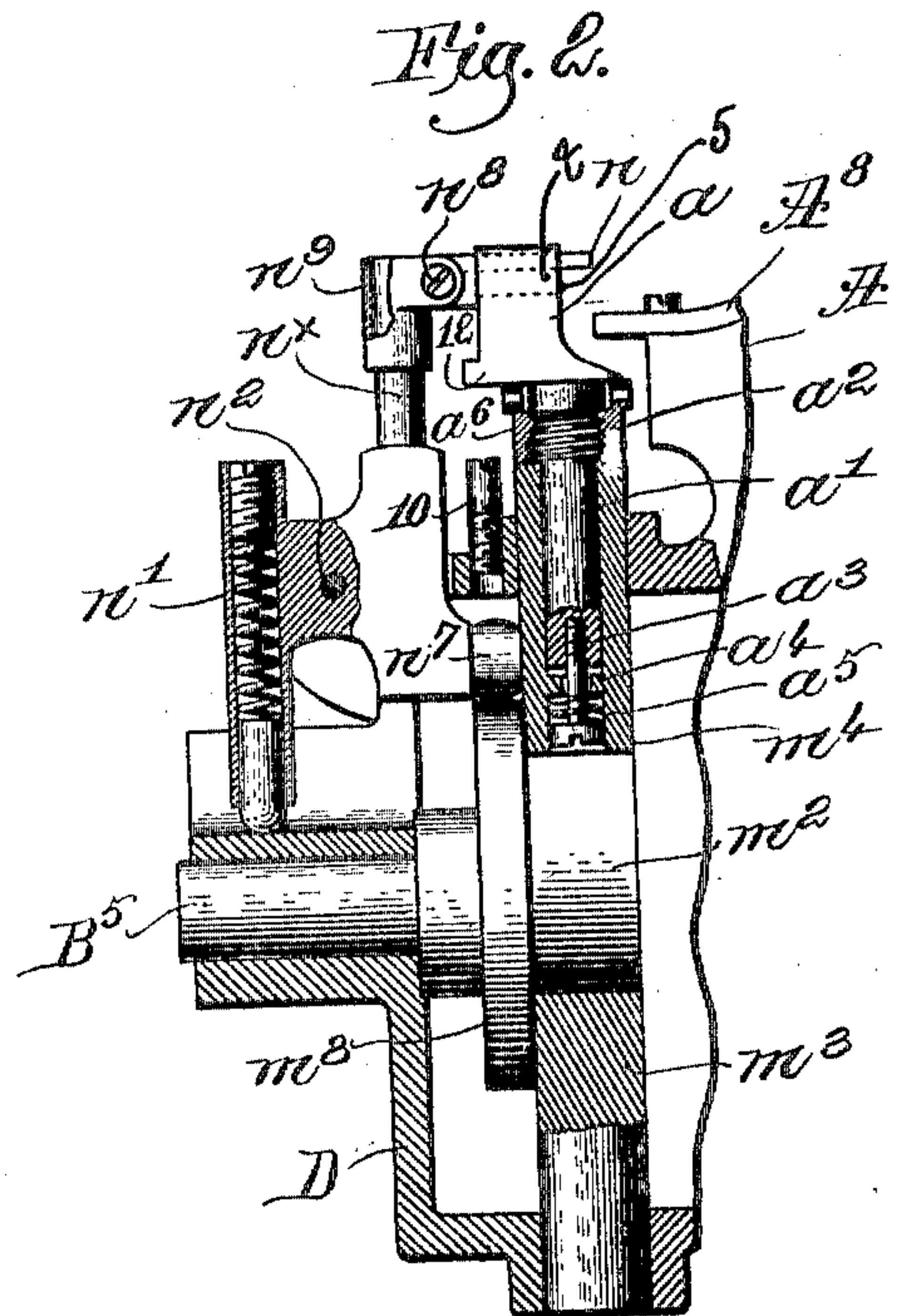
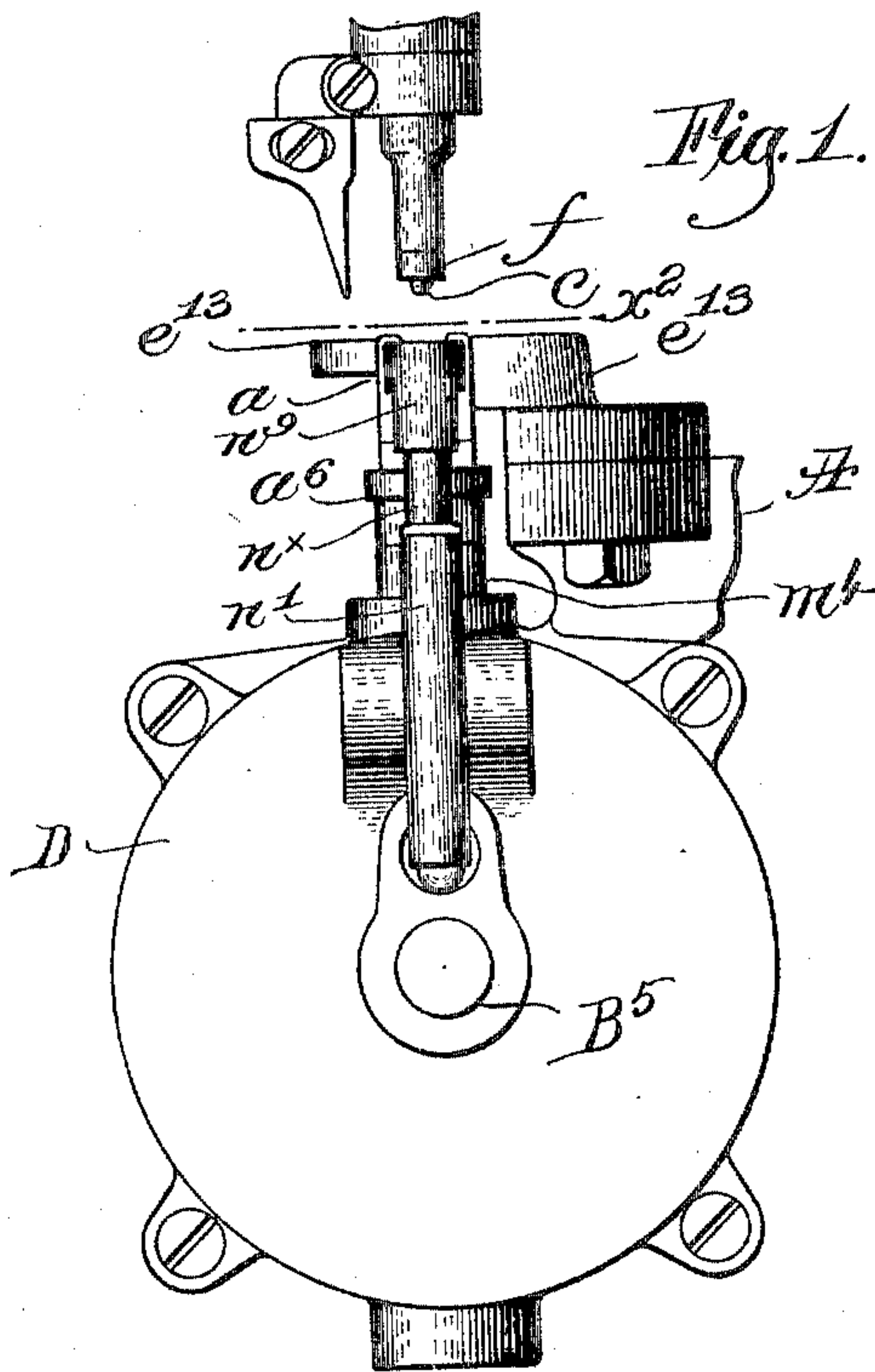
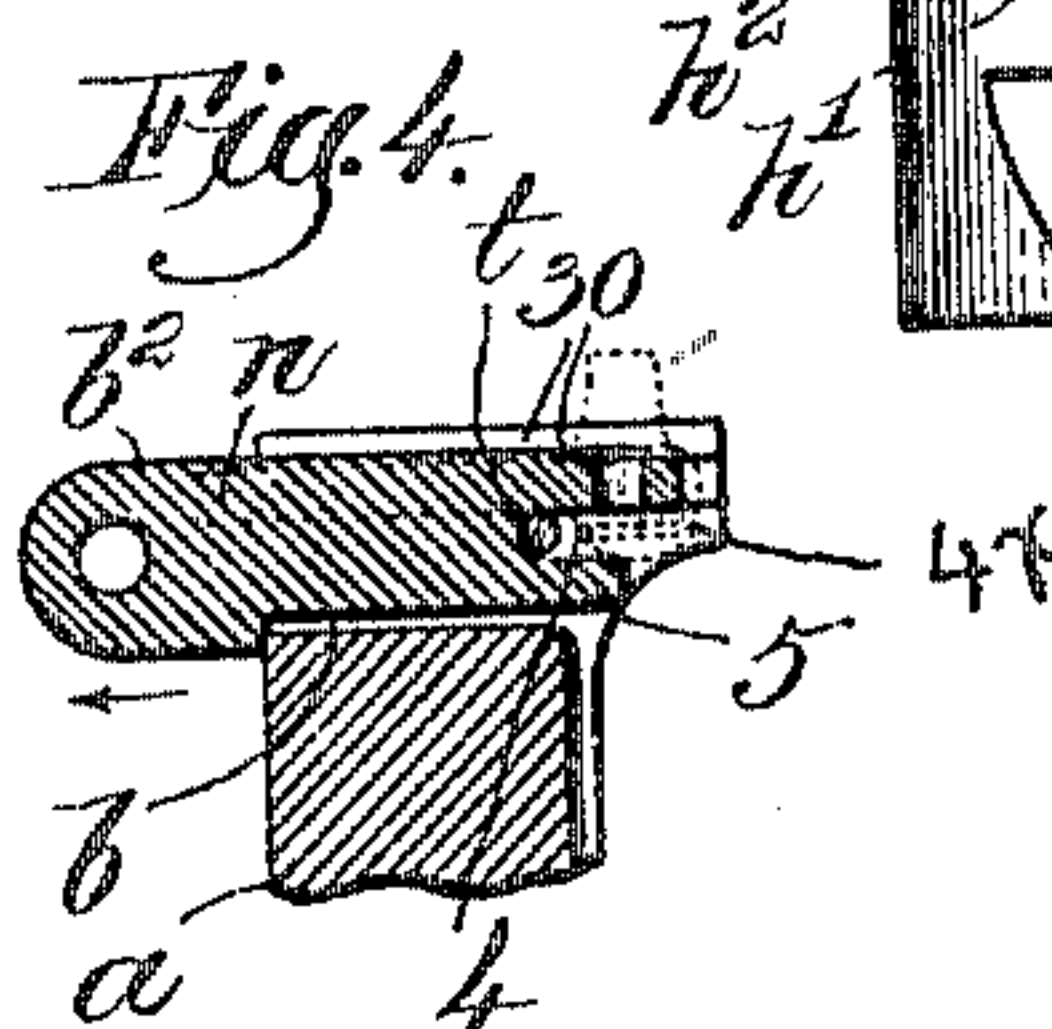
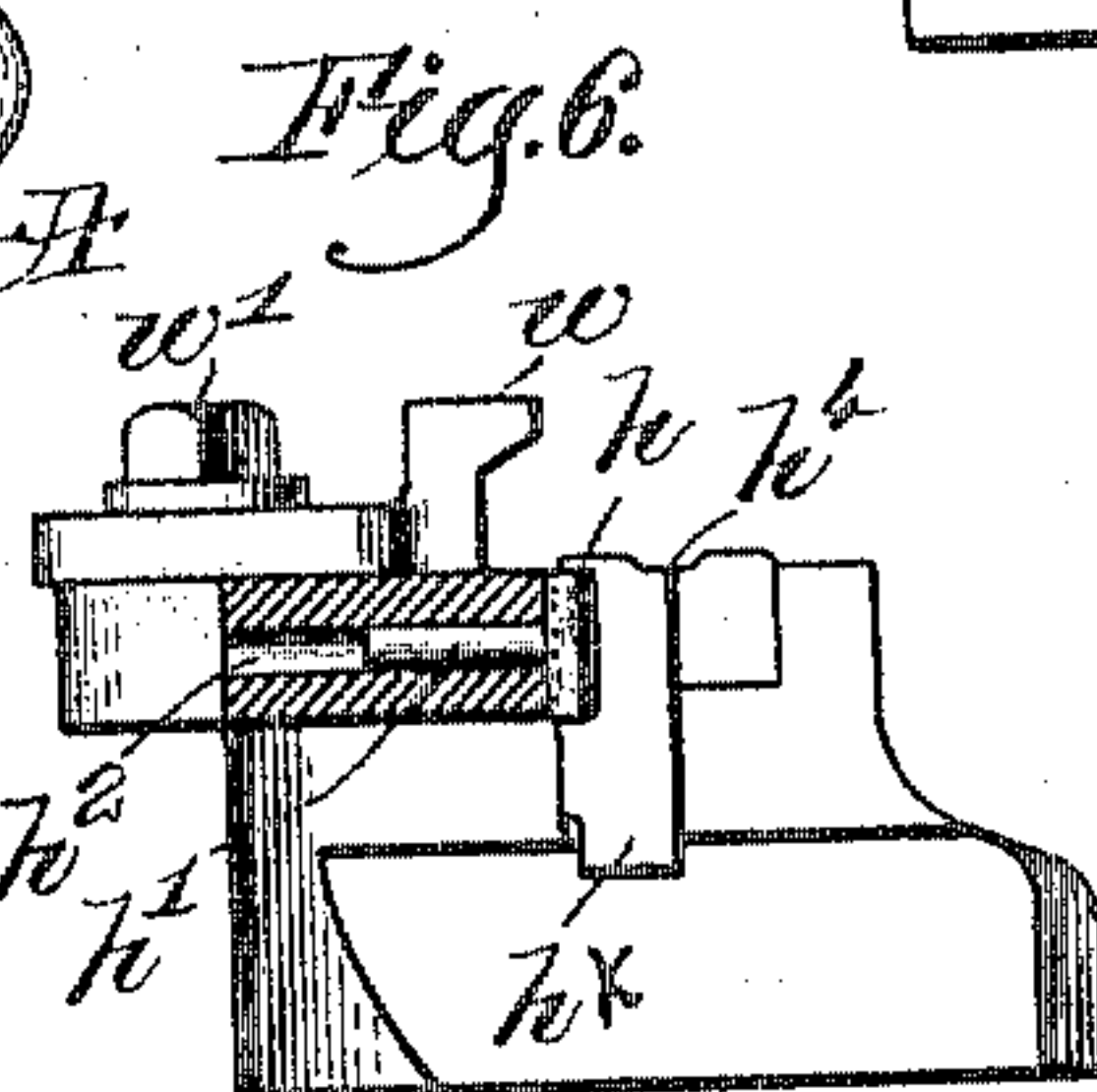
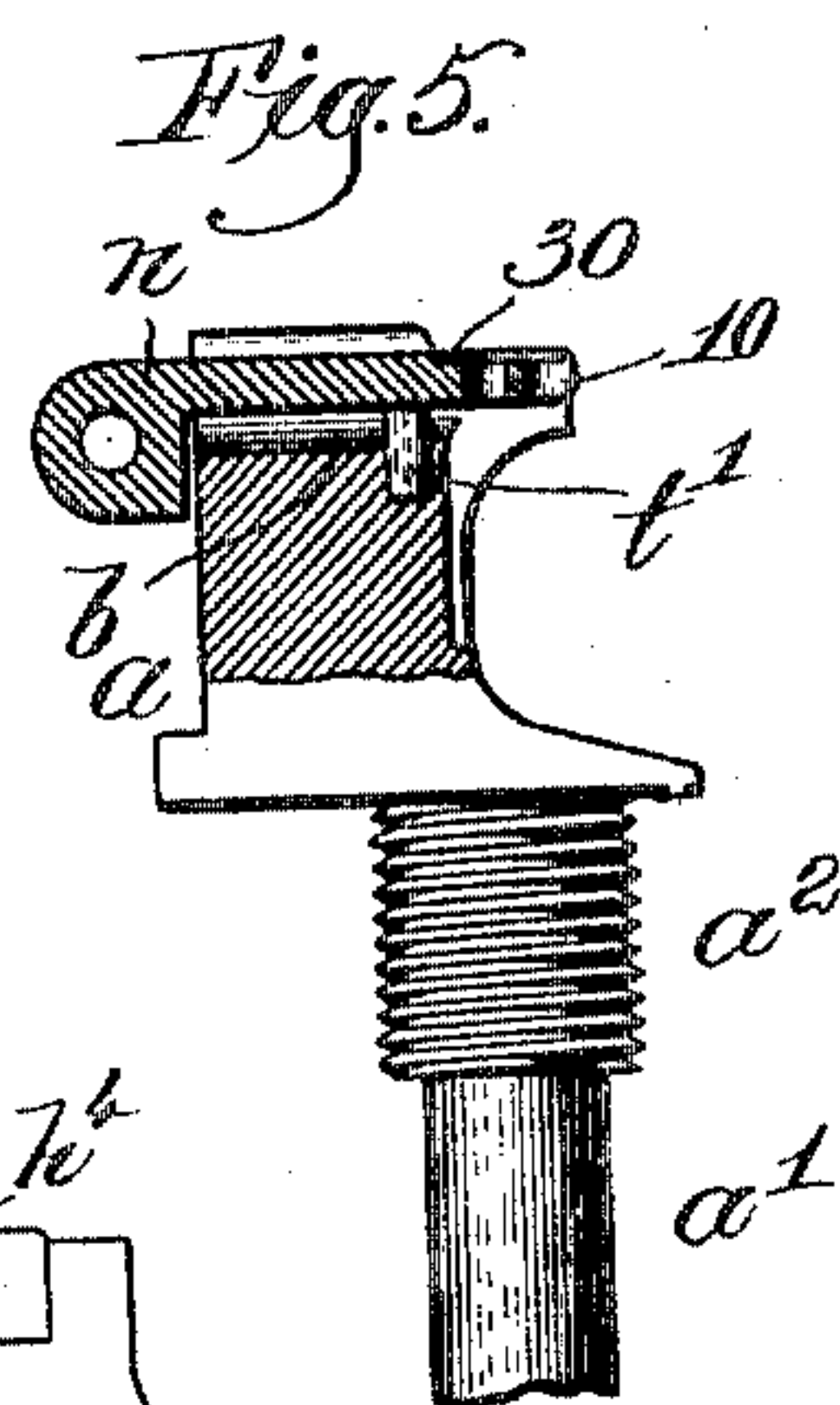
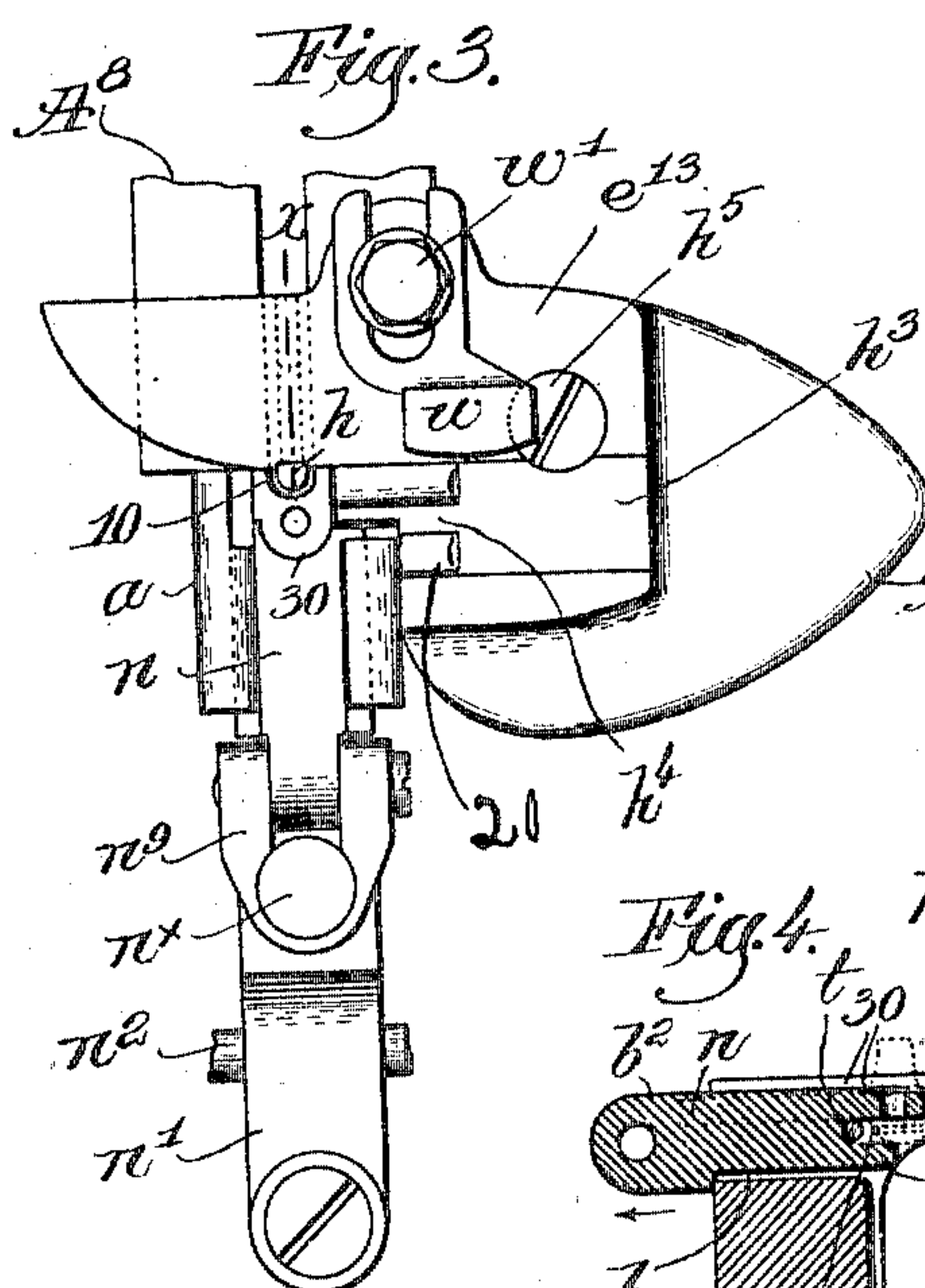


Fig. 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

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HOOK-SETTING MACHINE.

No. 811,840.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed October 3, 1904. Serial No. 226,936.

To all whom it may concern:

Be it known that I, PERLEY R. GLASS, a citizen of the United States, residing at Quincy, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Hook-Setting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object to improve the class of lacing-hook setting-machines represented in application Serial No. 163,823, filed July 28, 1903, and application Serial No. 178,241, filed October 23, 1903. The machine described in said application, Serial No. 178,241, shows a carrier provided with a plunger having a hook-sustaining plate to enter the throat of and hold the hook while the shank thereof is being set in the stock, the plunger carrying the hook-sustaining plate being notched at its upper end to receive the neck of the hook. Herein I have combined with the hook-sustaining plate a stripper, against which the head of the hook may contact as the plate is being withdrawn from the throat of the hook when for any reason the stud becomes stuck on the plate. I have also provided the hook-sustaining plate with a slot to receive the head of the hook and have also provided an adjustable stop to insure the alinement of the hook-sustaining plate with the end of the hook-delivery raceway. I have combined with the plunger, mounted in the plunger-carrier, means for adjusting the plunger on its carrier with relation to the punch and clenching-surface to provide for differences in thickness of the stock being operated upon and have also provided a stop to arrest the plunger at exactly the proper point as the plunger-carrier is being depressed, so that the end of the hook-sustaining plate comes in alinement with the end of the raceway. The plunger is provided with a spring at its junction with the plunger-carrier, so that after the plunger is arrested in its descent the spring may yield as the plunger-carrier completes its downstroke. I have also provided the work-support with a hook-seating device or guide that acts on the neck of the hook as the plunger is being moved or reset to keep the hook seated on the end of the hook-sustaining plate and

hold the same steadily and firmly during the setting operation.

Figure 1 in front elevation represents a sufficient portion of a hook-setting machine showing my improvements to enable my invention to be understood. Fig. 2 is a left-hand side view, partially broken out, the figure including the lower part of the raceway not shown in Fig. 1, the hook-setting plate and plunger occupying its elevated position with relation to the end of the raceway. Fig. 3 is a plan view below the line x^2 , Fig. 1, it showing also by dotted lines part of the raceway. Fig. 4 is a detail showing part of the plunger and the hook-sustaining plate in section. Fig. 5 shows in section part of the plunger and hook-sustaining plate with a modified form of stripper; and Fig. 6 is a sectional detail on line x , Fig. 3. Fig. 7 shows the top or plan view of the hook, chiefly to illustrate the groove in its neck.

Referring to the drawings, A represents part of the framework; A^8 , part of the hook-delivery raceway; e^{13} , the work-supporting plate; c and f , the combined punch and clenching-surface; B^5 , part of the cam-shaft; $m^3 m^4$, the yoke or plunger-carrier that is reciprocated in the front part of the framework by a cam m^2 , said yoke having its upper end made tubular to sustain the shank of the plunger a' , and m^8 is a cam on the shaft B^5 , that meets a roller-stud n^7 on a lever n' , having as its fulcrum a stud n^2 , sustained by the cap or cover D, forming part of the framework of the machine and located at the front end thereof, said lever being employed for moving the hook-sustaining plate, to be described, transversely with relation to the longitudinal axis of the plunger.

The parts so far referred to, with the exception of the hook-sustaining plate and certain modifications in the construction of the plunger, are and may be common to said application, Serial No. 178,241, and a threaded part of the shank of said plunger is provided with an adjusting-nut such as provided for in said application and in application Serial No. 163,823, said nut being herein lettered a^6 . Herein the part m^4 of the yoke receives loosely the shank a' of the plunger having a head a , said shank being bored at its lower end and threaded to receive a screw a^3 , which is extended through an inturned washer or

flange a^4 , fixed in the bore in the upper end of the carrier. This screw is surrounded between its head and the washer or flange by a spring a^5 , that normally acts to keep the adjustable nut e^6 seated upon the upper end of the plunger-carrier, the adjustment of said nut in the shank of the plunger enabling the length of the plunger to be exactly adapted to place the hook-sustaining plate carried thereby into proper position with relation to the punch and its clenching-surface according to the thickness of the stock, as provided for in application Serial No. 163,823.

It is essential that the end of the hook-sustaining plate be stopped opposite the end of the delivery-raceway common to said application, and to effect this the framework has been provided with a stop 10, that may be so adjusted that when the plunger-carrier descends the shoulder 12 of the head of the plunger will strike the end of said stop just as the end of the plate n arrives opposite the end of the raceway, and thereafter during the further descent of the plunger-carrier the spring a^5 is compressed, which permits the plunger to stop while the carrier continues to descend.

The head a of the plunger has a recess b , cut from its front to its rear side in the direction of the length of the groove in the hook-delivery raceway, and the side walls of this recess are grooved, as shown in Fig. 3, to receive the edges of the hook-sustaining plate n , which latter is provided, as described in said application, Serial No. 178,241, with a pocket 30 back from its end to receive the shank of the hook, said plate having at its end a notch 10 to receive the neck of the hook, as provided for in said application Serial No. 178,241. Herein, however, the hook-sustaining plate is shown as further provided with a slot 4 for the reception of the head 4^x of the lacing-hook after the same has been fed onto the end of the hook-sustaining plate, as provided for in application Serial No. 178,241, said head being shown as supported (see Fig. 4) by the finger 5, forming the under side of the slot 4.

With the hook-sustaining plate I have combined a stripper t , which is fixed with relation to the head of the plunger that the plate when moved in the direction of the arrow, Fig. 4, should the hook for any reason become stuck in or on the plate the head of the hook will meet the stripper and will be arrested while the plate is being moved to withdraw the same from the throat of the hook preparatory to lowering the plunger away from the hook, and thereby detach the plunger from the set-hook then sustained on the work-support under the usual presser-foot common to said application, Serial No. 178,241.

The upper end of the lever n' , free to be moved about the fulcrum n^2 by a cam m^8 on

the shaft B^5 , receives loosely a sleeve n^3 , that in turn receives a screw n^8 , that connects the hook-sustaining plate with said sleeve, so that by the removal of said screw the hook-sustaining plate may be readily detached from the lever n' , that a hook-sustaining plate of the proper thickness may be employed with the particular size of hooks being set.

I find it of great advantage to seat the hook on the hook-sustaining plate as the plunger is raised and to hold and guide the hook firmly as the same is being raised from the position where it is applied to the hook-sustaining plate, thus insuring the holding of the shank of the hook in such position that its hollow shank when forced into the stock will be passed accurately over the punch, thus insuring that the end of the hook will contact with the clenching-surface and be upset in the stock.

The hook composed of sheet metal is provided with a concavity at the back or outside of its neck, as shown in Fig. 7, said concavity being in the direction of the length of the neck, and for seating or retaining the hook on the end of the hook-sustaining plate as the plunger is raised I have provided a seating device h , that also acts as a guide for the hook. This seating device and guide (see Figs. 3 and 6) is shown as convex externally to fit the concavity of the hook. The device h has a shank h' , that is inserted loosely in a hole h^2 in the work-support. I have also provided the work-support with the steel block h^3 , (see Fig. 3,) the inner depending end h^x of which (see Fig. 6) presents a vertical face against which the outer side of the head of the hook or that portion from which the shank projects rides as the plunger carrying the hook rises to set the hook in the stock.

The upper side of the steel block has two ribs 20 to receive between them a groove h^4 , (see Figs. 3 and 6,) said ribs acting on the under side of the stock as the latter is being fed by the punch over the work-support and pushing the stock somewhat farther onto the punch, thus exposing its end that the hollow shank of the hook may readily embrace the punch.

Viewing Fig. 4, where the hook is represented by dotted lines, it will be noticed that the end of the finger 5 contacts with the outer end of the head part of the hook.

In the modification Fig. 5 I have shown a stripper t' , which occupies a vertical rather than a horizontal relation to the hook-sustaining plate. The edge gage w , held in its working position by an adjusting-screw w' , is of usual form.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hook-setting machine, a plunger-carrier and plunger, combined with a movable hook-sustaining plate having a slot at

its end, the wall of which helps to secure the head of the hook while the hook is being set.

2. In a hook-setting machine, a plunger-carrier and plunger, combined with a movable hook-sustaining plate having a slot at its end, the wall of which helps to support the head of the hook while the hook is being set, said plate having a notch at right angles to said slot to receive the neck of the hook.

3. In a hook-setting machine, a plunger, a hook-sustaining plate sustained loosely by said plunger, a stationary stripper carried by said plunger and normally out of engagement with the head of the hook and means to withdraw said plate from the throat of said hook, said stripper engaging the edge of the top of the hook as the plate is withdrawn from the throat thereof thus insuring the discharge of the hook from said plate.

4. In a machine of the class described, a plunger having a head grooved for the reception of a hook-sustaining plate, a hook-sustaining plate guided by the head of said plunger, a stripper sustained by said head and occupying a position always between the opposite ends of said plate, means to move said plate transversely of the longitudinal axis of the plunger to withdraw the end of the plate from the throat of the stud, said stripper insuring the discharge of the hook from the hook-sustaining plate.

5. In a hook-setting machine, a hook-delivery raceway, a plunger-carrier and plunger, means to adjust one of said parts with relation to the other part to provide for varying thicknesses of stock, a hook-sustaining plate slidably sustained at the end of said plunger, means to move said plunger vertically for a defined distance whatever the thickness of the stock, and an adjustable stop to arrest the upper part of the plunger in its descent that the hook-sustaining plate may be stopped in exact alinement with said hook-delivery raceway.

6. In a hook-setting machine, a plunger-carrier, a plunger loosely mounted therein and provided with a hook-sustaining plate, a

raceway to deliver hooks to the hook-sustaining plate, and an adjustable stop to arrest the plunger in its descent and stop the end of the hook-sustaining plate exactly in line with said raceway.

7. In a hook-setting machine, a plunger-carrier, a plunger loosely mounted therein and a spring interposed between said plunger and plunger-carrier, a hook-sustaining plate mounted in said plunger, a raceway to deliver hooks to said plate, and an adjustable stop to arrest the plunger in its descent to stop the end of the hook-sustaining plate exactly in line with said raceway, said spring permitting the plunger-carrier to descend to its starting-point without moving the plunger.

8. In a hook-setting machine, a plunger, a hook-sustaining plate carried thereby and having a block joined thereto, combined with a lever having an extension engaging said block loosely, and means to move said lever.

9. In a hook-setting machine, a plunger, a hook-sustaining plate carried thereby, a sleeve, a screw connecting said plate and sleeve, and a lever engaged loosely by said sleeve, and means to move said lever.

10. In a hook-setting machine, the combination with the plunger having a hook-sustaining plate to receive and carry a hook to be set, a work-support having a wear-plate the face of which acts as guide for the side of the hook as the latter is being moved during the setting operation.

11. In a hook-setting machine, a work-plate having a wear-plate provided with a vertical face to act against one side of the hook being set, and a seating device to enter the groove in the neck of the hook, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PERLEY R. GLASS.

Witnesses:

GEO. W. GREGORY,
MABEL PARTELOW.