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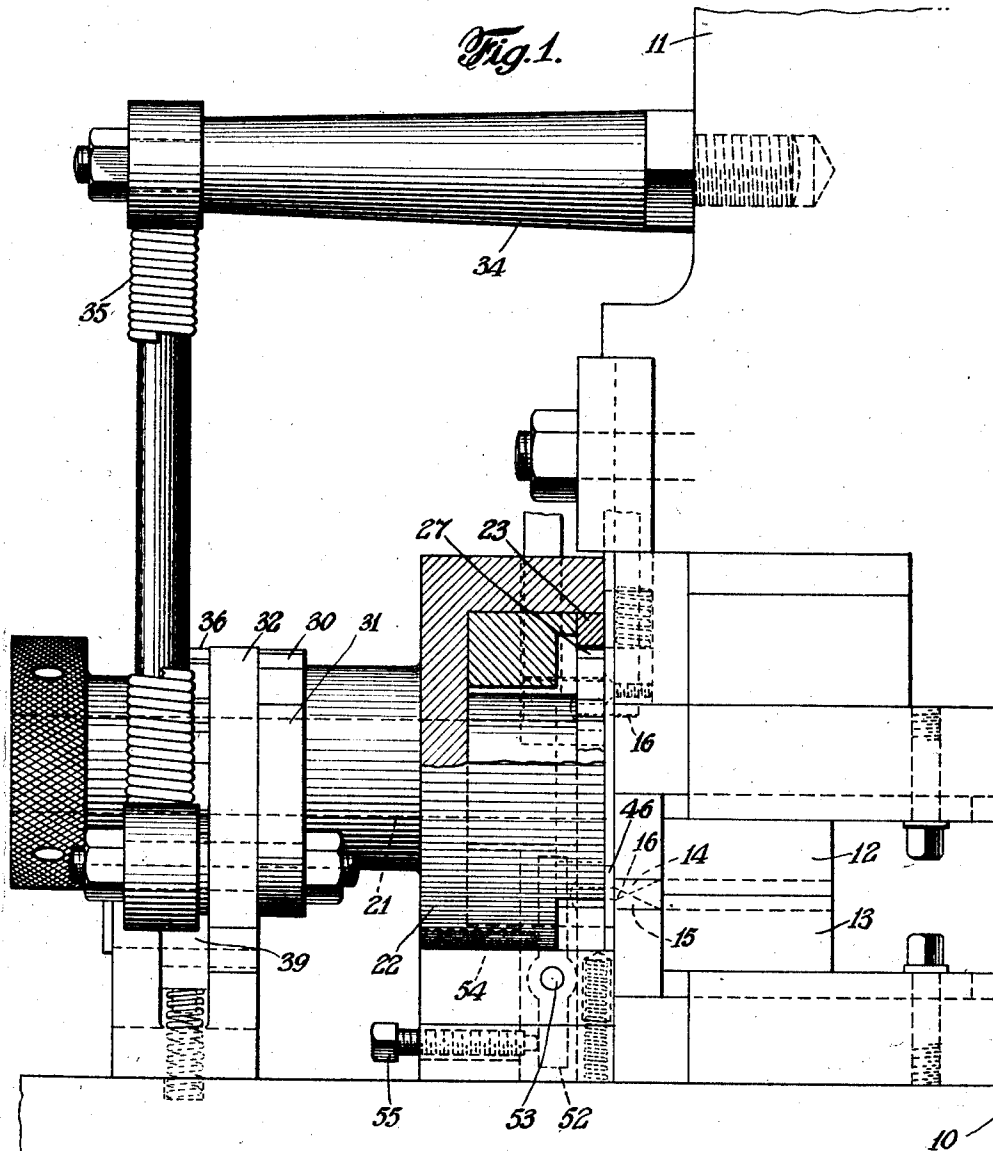
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BLANK PRESENTATION MECHANISM

Filed Feb. 18, 1924

4 Sheets-Sheet 1



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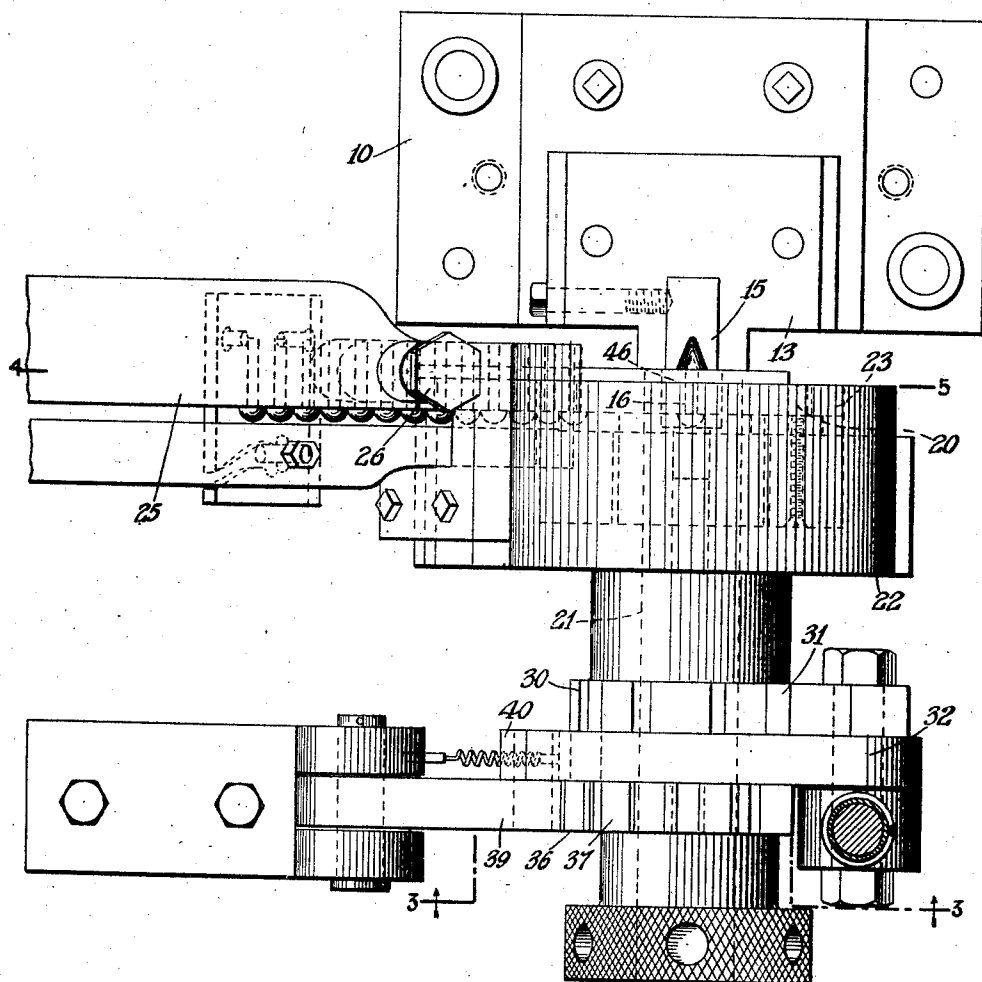
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Fig. 2.



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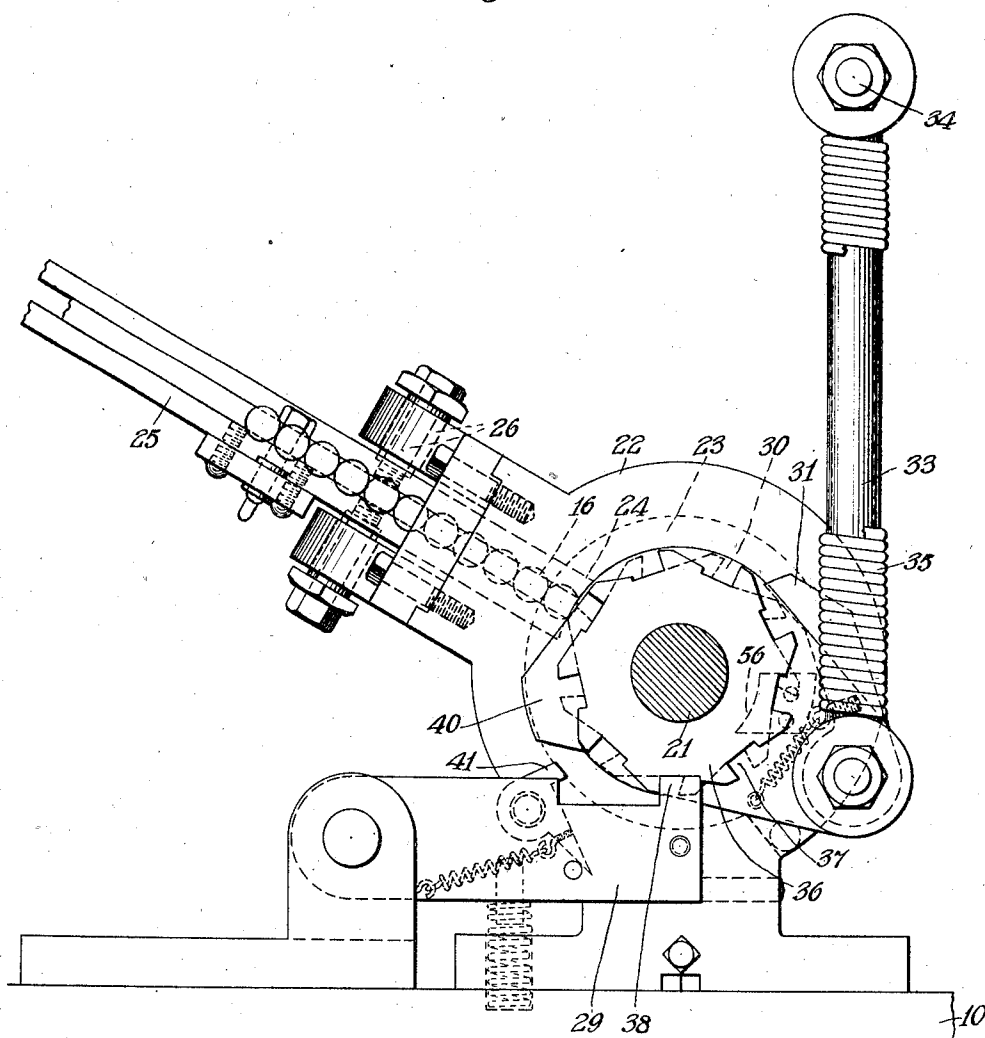
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Fig. 3.



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BLANK PRESENTATION MECHANISM

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Fig. 4.

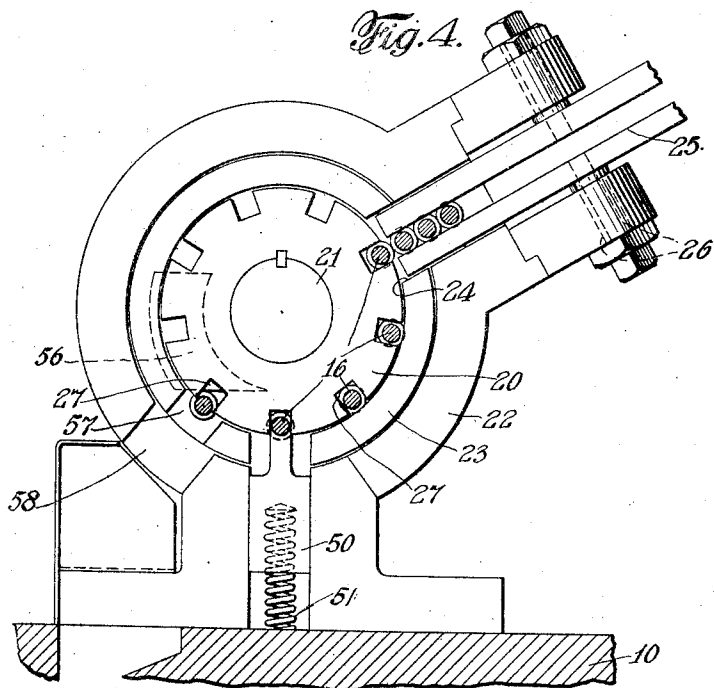
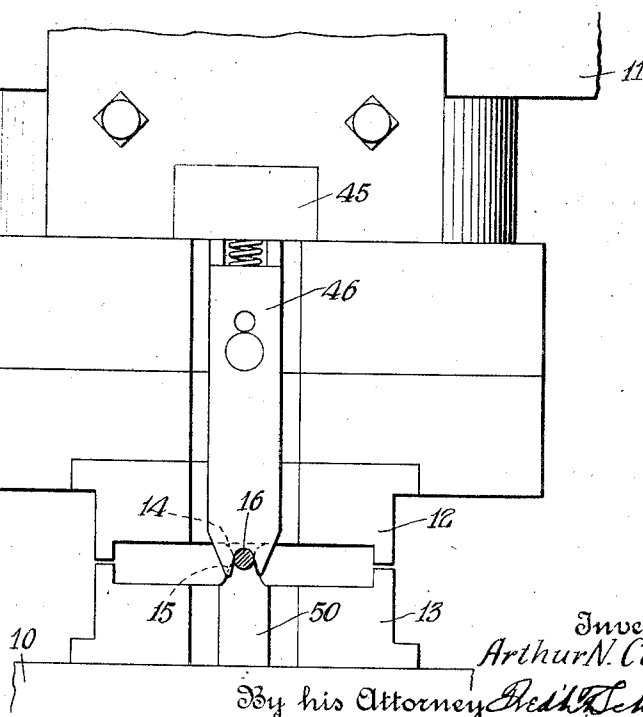


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR N. CALKINS, OF PELHAM BAY, NEW YORK, ASSIGNOR TO BOWEN HARDWARE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BLANK-PRESENTATION MECHANISM.

Application filed February 18, 1924. Serial No. 693,629.

To all whom it may concern:

Be it known that I, ARTHUR N. CALKINS, a citizen of the United States, and a resident of Pelham Bay, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Blank-Presentation Mechanism, of which the following is a specification.

The invention relates to presses for operating on blanks, and more especially to the mechanism for presenting the blanks to the die members thereof and by which the said blanks are to be operated on. It has for its object to afford simple, rugged and reliable means for automatically presenting in succession to the desired set of dies of a press the shanks of headed blanks, for example a screw blank, the end of whose shank is to be pointed by the said dies.

A further object of the invention consists in actuating the blank presenting means thru the movement of the ram of the press and in manner such that the presentation and removal of a blank respectively to and from the dies will be timed to operate in synchronism with the descent and elevation of the said ram. Further objects of the invention consist in the provision of means for aligning a blank in the dies, in resilient supporting and returning means therefor, and in means for positively ejecting a finished blank. To this end, the improved mechanism consists of a rotatable carrier member provided with a plurality of recesses or slots for receiving the blanks singly and which blanks are carried thereby to the dies and presented in timed relationship to the movement of the ram of the press between the dies thereof, then removed therefrom by the carrier and finally ejected from said carrier.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawings, in which—

Fig. 1 is a side elevation of the improved mechanism and a portion of a press to which the same is attached.

Fig. 2 is a plan thereof.

Fig. 3 is a vertical section taken on the line 3—3, Fig. 2, and looking in the direction of the arrows.

Figs. 4 and 5 are fragmentary vertical sections taken on the line 4—5, Fig. 2, and looking respectively toward the carrier end and toward the press.

Similar characters of reference designate corresponding parts thruout the several views.

Referring to the drawings, 10 designates the frame of a press shown as having a reciprocable ram 11, which it is preferred usually to incline slightly to the vertical, and contains an upper die holder 12 coacting with a lower die holder 13, said holders retaining respectively an upper die member 14 and lower die member 15. In the present instance, these are of a nature to point the end of the shank of a screw blank 16, all of which, however, is old and well-known and forms no particular feature of the present invention which relates more especially to the means for presenting the blank between the die members 14 and 15 for the pointing action thereon.

This is effected by means of a rotary carrier member 20 which is mounted on and for rotation with a shaft 21, the carrier 20 being located within a suitable housing 22 in the forward portion thereof and thru the opposite end of which the shaft 21 extends. Mounted within the housing 22 about said rotary carrier member, which is in the nature of a circumferentially slotted disk, is an annular guide member 23 mounted also about the shaft 21 and suitably secured to the housing. This annular guide member surrounds the circumference of the said rotary carrier disk 20, extending flush with the outer face of the said disk; and is provided with an opening 24 into which extends the inner end of a chute 25. The latter may, for example be of the character set forth in my co-pending application filed of even date herewith and is arranged for feeding into the housing and to the carrier disk the blanks 16 to be pointed by the press. The sides of this chute are separable, as by the two screws 26, so that the chute may accommodate blanks whose shanks vary in diameter within the limits of the adjustment of the said chute. This will necessitate, however, the substitution of a carrier provided with correspondingly sized slots. The said carrier disk is provided with the requisite numbers of equally spaced circumferential slots 27 which are designed to receive and to hold the shank of a headed blank as it is delivered thereto from the chute; and the disk may also be slightly inclined from the vertical and parallel to the

ram 11 to assist in holding the head to the carrier wall. Furthermore, more or less variation in length of the shanks of blanks of same shank diameter may be accommodated by a carrier and annular ring of a certain width, and which width should be as great as possible to prevent undue rocking of a blank, by adjusting the dies of the press accordingly. However, it will also become necessary to substitute a carrier disk and an annular ring in instances where the variation of shank length is beyond the capacity of the carrier disk.

The carrier disk is designed to be given an intermittent rotational movement thru the shaft 21, said movement being imparted thereto from the ram of the press by a pawl and ratchet movement, as follows. Mounted on the shaft 21 is a ratchet wheel 30 with the teeth of which is designed to engage a pawl 31 secured to a pawl plate 32, the latter being loosely mounted on the said shaft 21 and the said pawl plate with pawl being rocked thru a telescopic connecting rod 33 of a well-known construction. One end of this rod is secured to a stud or rod 34 extending outwardly from the ram, the other end being suitably pinned to the said pawl and pawl plate. The spring 35 of the connecting rod 33 serves to hold closely together the two parts of said connecting rod and will thus allow of greater flexibility of the feeding mechanism and prevent stopping of the press in case of jamming of a blank. In such an event, the shaft may be manually turned thru a knurled head of knob at its outer end to clear the blocking blank.

Provision is made, furthermore, for locking the shaft 21 and thru it the carrier disk 20 thereon when the ram is down and the die is cutting the points on a blank. For example, a locking or stop wheel 36 is fixedly secured to the shaft 21 and has provided therein circumferential teeth 37 between which is adapted to fit a tooth 38 of a detent 39. As soon, however, as rotation of the shaft is again to occur, the pawl plate 32 engages, thru a nose 40 thereon, with a trip 41 of the detent 39 to release its tooth 38 from between the teeth 37 of the stop wheel.

Thru its rotation, the carrier member thus presents successively the blanks to the lower die member 15 and in the lowest position of the said blank, as shown more clearly in Fig. 4 of the drawings. When a blank has reached this position, a corresponding slot of the carrier disk member is positioned just opposite the chute to receive a further blank; and only one blank at a time is thus admitted to the carrier and at each downward movement of the ram of the press. When this downward motion occurs, the upper die block holder descends upon the lower die block holder; and provision is made in connection therewith for insuring

proper alignment of a blank in the lower die. To this end, there is adjustably attached to the upper die block holder a small block 45 having a guiding yoke 46 which is designed to slide closely to the carrier disk to straddle and positively lock a blank centrally on the lower die. This action, also, brings the shank of the blank into a position to rest on a return slide block 50 which is urged upwardly by compression spring 51. Moreover, when the upper die comes in contact with the blank, the latter has a tendency to recoil axially, but the same is controlled by contact of the blank head with the inner end of a lever 52 oscillatable about a pin 53 under the action of a spring 54; and the inward position of same relatively to the blank head is limited by an adjustable screw 55. As the ram starts upwardly with its yoke 46, the latter releases the pointed blank and the return slide block 50 forces it completely back into the carrier slot, clearing the die for the next blank. At the next stage of the intermittent movement of the carrier, the head of the finished blank comes in contact with the lower edge of a plate 56 which is secured to the guide member and positively ejects the blank from the carrier thru an opening 57 of the guide member 23 and registering with an opening 58 thru the housing.

I claim:—

1. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means actuated from the ram of the press to impart rotational movement to the disk, and including a pawl oscillatable from said ram and a ratchet connected with the disk and actuated by said pawl, locking means to hold the disk rigid during periods of rest when a slot thereof registers with the dies and including a spring urged detent and a notched plate connected with the carrier disk and engaged by the detent, and releasing means therefor consisting of a spring drawn nose member movable with the said pawl.

2. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and means including a yielding support to insure proper alignment of the blank in one of the dies.

3. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and a yielding abutment to accommodate axial recoil of the blank when operated on by the dies.

4. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and means to insure proper alignment of the blank in one of the dies.

5. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and means movable with one of the dies to insure proper alignment of the blank in the other of said dies.

6. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and means to accommodate recoil of the blank when operated on by the dies.

7. The combination with a ram of a press and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and a lever spring-urged in the direction of the head of a blank to accommodate recoil thereof when acted upon by the dies, and an adjustable stop therefor.

8. The combination with a ram of a press

and the dies thereof; of presentation mechanism for headed blanks, comprising a chute for delivering blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive therefrom and to hold the shank of a blank, means to rotate said carrier disk, a guide member surrounding the disk for retaining therein the blanks carried thereby, and spring-urged means supporting the blank during the operation of the dies thereon and adapted to move a finished blank into its slot of the carrier disk.

9. The combination with the ram of a blank pointing press and the pointing dies thereof; of presentation mechanism for headed blanks comprising a housing, an inclined chute delivering therein blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive a blank therefrom and to hold the shank thereof, an annular guide member rigidly mounted within the housing and surrounding the circumference of said carrier disk, provided with an opening therethru for the said chute and an outlet therefrom for a finished blank, means actuated from the ram to impart intermittent rotational movement to the disk, locking means to hold the disk rigid during periods of rest when a slot thereof registers with the dies, releasing means therefor, means movable with one of the dies adapted to straddle the shank of the blank to insure proper alignment of same in the other of said dies, means to accommodate recoil of the blank, and spring-urged means supporting the blank during the pointing operation and adapted to move a pointed blank into its slot of the carrier disk.

10. The combination with the ram of a blank pointing press and the pointing dies thereof; of presentation mechanism for headed blanks comprising a housing, an inclined chute delivering therein blanks to be pointed, a carrier disk with circumferential slots adapted to register with the outlet of the chute to receive a blank therefrom and to hold the shank thereof, an annular guide member rigidly mounted within the housing and surrounding the circumference of said carrier disk, provided with an opening therethru for the said chute and an outlet therefrom for a finished blank, means actuated from the ram to impart intermittent rotational movement to the disk, and including a telescopic resilient connecting member and a rod connecting same with the ram, a pawl oscillatable thereby and a ratchet connected with the disk and actuated by said pawl, locking means to hold the disk rigid during periods of rest when a slot thereof registers with the dies and including a spring-urged detent and a notched plate connected with the carrier and engaged by the

detent, releasing means therefor consisting of a spring drawn nose member movable with the said pawl, means movable with one of the dies adapted to straddle the shank of the blank to insure proper alignment of same in the other of said dies, means to accommodate recoil of the blank including a lever spring-urged toward the head of a blank in the die and an adjustable stop therefor, 5 spring-urged means supporting the blank during the pointing operation and adapted to move a pointed blank into its slot of the carrier disk, and means to effect the discharge of a finished blank from the carrier disk thru the said outlet of the annular guide member and consisting of a plate secured to the guide member behind the carrier and presenting an edge for engagement with the head of a blank. 15

Signed at New York, in the county of Bronx and State of New York, this 14th day of February, A. D. 1924. 20

ARTHUR N. CALKINS.