Oct. 1, 1935. J. BARD 2,016,221

REGISTERING DEVICE FOR PRINTING PRESSES

Filed June 1, 1935

Fig. 1

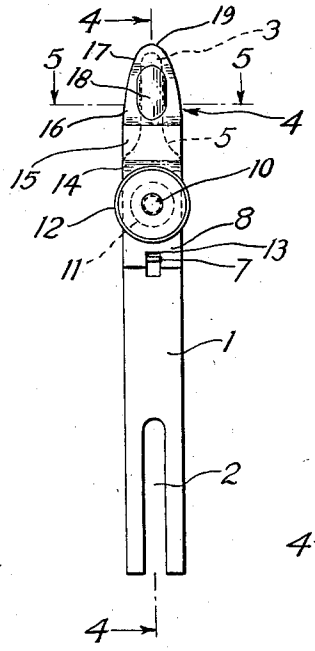


Fig. 2

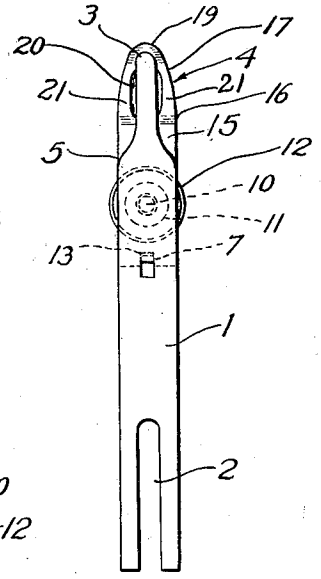


Fig. 5

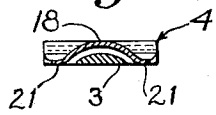


Fig. 6

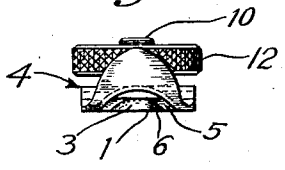


Fig. 3

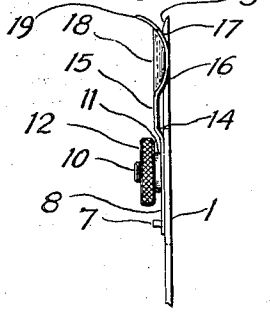


Fig. 8

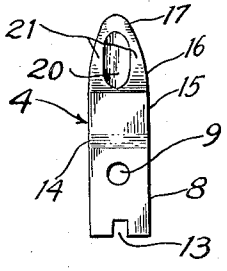


Fig. 4

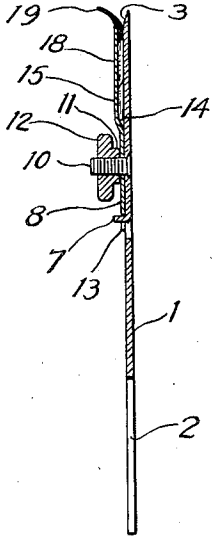


Fig. 7

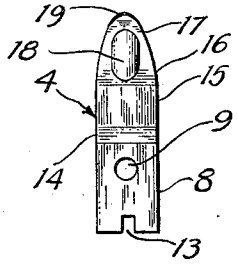
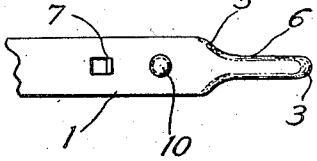


Fig. 9



INVENTOR
Joseph Bard
BY
ATTORNEY

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UNITED STATES PATENT OFFICE

2,016,221

REGISTERING DEVICE FOR PRINTING PRESSES

Joseph Bard, Hartford, Conn.

Application June 1, 1935, Serial No. 24,564

23 Claims. (Cl. 101—413)

My invention relates to registering devices for printing presses.

It has among its objects to provide an improved sheet receiving member for such a device and, more particularly, to provide such a member which is of an improved construction especially adapted to enable registering at high speed and in a limited space. Another object of my invention is to provide such a member having an improved spring sheet engaging member associated in a new and improved manner with the tine carried by the tine body and having improved cooperating sheet engaging portions disposed and cooperating in a new manner with one another and said first mentioned tine and also including improved connecting means connecting said sheet engaging portions and improved spring means for varying the tension of the latter, all whereby an improved cooperation and improved results are obtained. Still other objects include the provision of such a member of markedly simple construction adapted to long use in service and one which is not only exceedingly effective in operation but also small and narrow and which is moreover formed of a minimum number of simple parts of inexpensive construction and in which the tension is adapted to be readily adjusted without requiring bending of the sheet engaging portions. These and other objects and advantages of my improved construction will, however, hereinafter more fully appear.

In the accompanying drawing, I have shown for purposes of illustration one embodiment which my invention may assume in practice.

In the drawing,—

Figure 1 is a top plan view of a sheet receiving member of my improved construction;

Fig. 2 is a bottom plan view of the same;

Fig. 3 is a side elevation of the same;

Fig. 4 is a longitudinal sectional view on line 4—4 of Fig. 1;

Fig. 5 is an enlarged transverse section on line 5—5 of Fig. 1;

Fig. 6 is an enlarged end view of the working end of the member shown in Fig. 1;

Fig. 7 is a top plan view of my improved spring member per se;

Fig. 8 is a bottom plan view of the member shown in Fig. 7, and

Fig. 9 is a top plan view of the tine carrying end of the cooperating tine member.

In this illustrative construction, it will be noted that I have shown a member having a usual shank 1 in strip form and having a usual slot 2 in one end and an elongated central tine 3 at the opposite end, this tine 3 herein being of an improved construction and arranged and cooperating in an improved manner with an improved resilient cooperating sheet engaging member, generally indicated at 4, all as hereinafter more fully described.

Referring more particularly to the member 1, it will be noted that while the tine 3 has the usual flat bottom and rounded or beveled end, it is relatively long and narrow as compared with the shank and also provided with long sloping shoulders 5 connecting the same to the body of the shank 1, while also provided with a rounded upper edge 6 extending from the tip along the tine and also along the sloping shoulders 5 thereon. Further, it will be noted that between these shoulders 5 and the slot 2 an upwardly bent lug 7 is provided, herein at a point spaced from the junction of the shoulders 5 with the shank 1 by a distance slightly less than the distance from that junction to the outer extremity of the tine 3.

Disposed on this portion of the shank 1 in front of the lug 7 is also my improved cooperating spring member 4. As shown, the same herein has a flat body portion 8 on the inner end thereof and a hole 9 therein receiving a screw 10 projecting up from the shank 1. It further has its body portion 8 adapted to be pressed into engagement with the shank 1 by an annular shoulder 11 formed on a threaded and externally knurled nut 12 carried on the screw 10. Also, as herein, the portion 8 is provided with a slot 13 in its rear end adapted to receive, the lug 7 and thereby, in conjunction with the nut 12, position the member 4 on the shank 1 while the front portion of the member 4 extends away from the nut 12 and along the tine 3 to cooperate with the latter.

Referring more particularly to this front portion of the member 4, it will be noted that the flat inner end of the latter is provided with an upwardly bent up or inclined portion 14 in front of the nut 12 and with another flat portion 15 in front of this bent up or inclined portion 14. Further, it will be observed that in front of this flat portion 15, the member 4 is curved as at 16, downward and upward to form curved marginal portions 17 extending to the end thereof. It is also provided with a central longitudinally extending raised bridging portion 18 of substantially elliptical shape in plan and of arcuate transverse section which leads forward from the curved portion 16 between the marginal portions 17 and connects the latter transversely. As shown, an upturned end flange portion 19 is also provided which forms an extension of the curve 16 and

marginal portions 17 and extends upward substantially above the portion 18 which merges into the base of this portion 19, while also connecting the sides of the marginal portion at the outer end thereof. Referring to the under side of the member 4, i. e., the portion of the same adjacent the tine 3, it will also be noted that the portion 18 presents a longitudinally extending groove 20 of arcuate transverse section and having on opposite sides thereof longitudinal edge portions in the form of laterally spaced sheet engaging portions 21 on the underside of the marginal portions 17.

When the parts are in operative relation, the tine 3 is disposed longitudinally of the groove 20, which is slightly wider than the tine, so that the latter is vertically spaced slightly from the longitudinal edge or sheet engaging portions 21. Also, it will be noted that the tine 3 extends out in front of the groove 20 and under the portion 19, while the sheet engaging portions 21 extend longitudinally of the tine along and adjacent the opposite edges thereof over the spaces at each side of the tine 3 and extend laterally within the lateral limits of the wider shank, these portions 21 herein being disposed wholly within the lateral limits of the latter and also being of further reduced width toward the free end of the tine, all in such manner as thereby to minimize the dimensions of the same. Moreover, it will be observed that the sides of the tine 3 are spaced from the rounded wall portions of the groove 20, which form longitudinally extending upturned edge portions on the inner edges of the portions 21, so that paper receiving passages are provided between the portions 20, 21 on the resilient member 4 and the top surface of the tine 3. Attention is further directed to the fact that these passages are such that, while the inner surfaces or laterally spaced sheet engaging portions 21 on the member 4 may cooperate with the tine 3 to provide the desired grip on the paper, i. e., with the successive sheets above the tine 3 and below both of the portions 21, the sheets are prevented from passing improperly between the portions 21, i. e., under one portion 21 and over both the tine 3 and the other portion 21, or vice-versa. Instead, the sheet is deflected and guided by the transverse connection between these portions 21, herein the upturned end connecting portion 19 which connects these portions 21 and closes the space between the same, in such manner as to cause the sheet to slide over the tine and under both portions 21 and thus to be gripped and released by the tine 3 and portions 21 in the desired manner. It will also be understood that this grip will be varied by suitable adjustment to adapt the device to use on papers of different thickness, while the unobstructed passage beneath the portion 15 also enables papers to extend different distances under the member 4.

As a result of my improved construction, it is found that extremely accurate registering is obtained, the tine member 3 and my improved member 4 cooperating effectively to provide the requisite grip on the paper to carry it over to the side guide at high speed. Further, as a result of my improved construction, it is found that a very desirable gradual release of the paper is effected as the sheet receiving member moves to disengage the sheets, the portions 21 which engage the sheets on opposite sides of the tine 3, successively disengaging from the sheet as the member 4 swings. Moreover, my improved construction, in addition to a minimum width heretofore unobtainable while producing a construction making possible the use of the markedly advantageous laterally spaced sheet engaging portions cooperating with a central tine, also has the marked advantage over prior devices having laterally spaced cooperating sheet engaging portions in the form of prongs, of preventing the passage of a sheet under either sheet engaging portion and over both the central tine and the other sheet engaging portion and thus eliminates resultant difficulties including delays, spoilage of sheets and breakage. Attention is further directed to the fact that the member 4 is so narrow and compact that it clears in the desired manner when swung to disengaging position in a very limited space and thus avoids the breakage and delays incident to the use of such wide prior structures as shown in the Klorer patent, No. 1,330,636, which will not clear in certain presses. Further attention is directed to the markedly simple and inexpensive character of my improved construction as compared with a construction of the Klorer type, and, particularly, to the improved construction of my improved spring member 4 and the improved action on the sheets made possible with the same in combination with my improved shank tine member. It is also found that my improved structure is adapted to stand up well in service and to continue to function effectively over long periods while permitting the use of thin material. Also, it will be noted that it is possible to adjust the tension as necessary by merely bending the member 4 at the portion 14, any necessity for bending at the front end of the member 4 which may derange feeding, being wholly avoided. It will also be understood that the raised portion 18 may be cut out in whole or in part if desired without interfering with the effective operation of the device under certain conditions, although such a construction is not preferred and the structure is weakened thereby while heavier material for the rest of the member 4 is also thus made necessary. These and other advantages of my improved construction will, however, be clearly apparent to those skilled in the art.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form is used for purposes of illustration and that the invention is not limited thereto and may be modified and embodied in other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A sheet receiving member having cooperating laterally spaced sheet engaging portions extending longitudinally of said member and connected laterally to inhibit the entry of a sheet above one cooperating portion and below the other.

2. A sheet receiving member having cooperating laterally spaced sheet engaging portions extending longitudinally of said member and connected laterally to inhibit the entry of a sheet above one cooperating portion and below the other, said portions having an upturned sheet guiding portion connecting the same at their outer ends.

3. A sheet receiving member having cooperating laterally spaced sheet engaging portions extending longitudinally of said member and connected laterally to inhibit the entry of a sheet above one cooperating portion and below the other, said por-

tions having raised bridging means laterally connecting the same.

4. A sheet receiving member having cooperating laterally spaced sheet engaging portions extending longitudinally of said member and connected laterally to inhibit the entry of a sheet above one cooperating portion and below the other, said member having a spring portion therein in rear of said sheet engaging portions and bendable to vary the tension.

5. A sheet receiving member having a central tine and cooperating laterally spaced sheet engaging portions at opposite sides of said central tine and having a connecting portion closing the space between said lateral portions.

6. A sheet receiving member having a central tine and carrying cooperating laterally spaced sheet engaging portions above and at each side of said central tine and connected together above the free end of the latter.

7. A sheet receiving member having a tine and carrying a member having a plurality of cooperating laterally spaced sheet engaging portions and having an end connecting portion therebetween above the free end of said first mentioned tine forming means for preventing the entry of a sheet above one cooperating portion and below the other.

8. A sheet receiving member having a tine and carrying a resilient member extending longitudinally of said tine and having a plurality of cooperating laterally spaced sheet engaging portions at the edges of said member closed at their front ends and having in rear thereof a connection to said member bendable to vary the tension.

9. A sheet receiving member having a tine and carrying a resilient member having a longitudinally ribbed portion overlying said tine and having a plurality of cooperating laterally spaced sheet engaging portions at the edges of said ribbed portion and connected transversely by said ribbed portion.

10. A sheet receiving member having a tine and carrying a resilient member having a longitudinally ribbed portion overlying said tine and having a plurality of cooperating laterally spaced sheet engaging portions at the edges of said ribbed portion and an upwardly curved end on the latter also connecting said cooperating portions and overlying the free end of said first mentioned tine.

11. A sheet receiving member having a tine and a resilient member having a closed portion overlying said tine and presenting a groove above the latter having laterally spaced sheet engaging portions connected by said closed portion and cooperating with said tine in gripping and successively releasing a sheet.

12. A sheet receiving member having a tine and a cooperating resiliently connected member presenting a plurality of cooperating laterally spaced sheet engaging portions and having sheet passage means between said tine and cooperating sheet engaging portions on said member and a portion connecting said cooperating sheet engaging portions and engaging and directing a sheet over said tine and below both of said cooperating portions.

13. A sheet receiving member having a tine and a cooperating resiliently connected member presenting a plurality of cooperating laterally spaced arcuate sheet engaging portions and having sheet passage means between said cooperating portions and an end portion connecting said cooperating portions and bent upward above the free end of said first mentioned time.

14. In a sheet receiving member, a tine shank having a central tine projecting forwardly therefrom and narrower than said shank, and a cooperating sheet engaging member carried on said shank and having cooperating with the free end of said tine laterally spaced sheet engaging portions extending laterally within the lateral limits of said shank and longitudinally of said tine over spaces adjacent each edge thereof within said lateral limits.

15. In a sheet receiving member, a tine shank having a central tine projecting forwardly therefrom and narrower than said shank, and a cooperating sheet engaging member carried on said shank and having cooperating with the free end of said tine laterally spaced sheet engaging portions extending laterally within the lateral limits of said shank and longitudinally of said tine over spaces adjacent each edge thereof within said lateral limits, said shank having shoulders thereon in rear of said tine and said sheet engaging portions being disposed substantially within the lateral limits of said shoulders and extending longitudinally beyond the same adjacent the edges of said tine.

16. In a sheet receiving member, a tine shank having a central tine projecting forwardly therefrom and narrower than said shank, and a cooperating sheet engaging member carried on said shank and having cooperating with the free end of said tine laterally spaced sheet engaging portions extending laterally within the lateral limits of said shank and longitudinally of said tine over spaces adjacent each edge thereof within said lateral limits, said sheet engaging portions being of a reduced width narrower than said shank toward the free end of said tine.

17. In a sheet receiving member, a tine shank having a central tine projecting forwardly therefrom and narrower than said shank, and a cooperating sheet engaging member carried on said shank and having cooperating with the free end of said tine laterally spaced sheet engaging portions extending laterally within the lateral limits of said shank and longitudinally of said tine over spaces adjacent each edge thereof within said lateral limits, said sheet engaging portions having upturned longitudinal inner edges along the edges of said tine.

18. In a sheet receiving member, a tine shank having a central tine projecting forwardly therefrom and narrower than said shank, and a cooperating sheet engaging member carried on said shank and having cooperating with the free end of said tine laterally spaced sheet engaging portions extending laterally within the lateral limits of said shank and longitudinally of said tine over spaces adjacent each edge thereof within said lateral limits, said sheet engaging portions being of reduced width toward the outer end of said tine and extended toward the center line of the latter.

19. A sheet receiving member having a tine body and a tine substantially narrower than said body, and a cooperating resilient sheet engaging member having laterally spaced sheet engaging portions disposed substantially within the lateral limits of said body and cooperating with said tine and also having means for preventing the entry of a sheet over one sheet engaging portion and below the other.

20. A sheet receiving member having a tine body and a tine substantially narrower than said

body, and a cooperating resilient sheet engaging member having laterally spaced sheet engaging portions disposed substantially within the lateral limits of said body and cooperating with said tine and a portion intermediate said sheet engaging portions overlying said first mentioned tine and directing a sheet above the latter and under both sheet engaging portions.

21. A sheet receiving member having a tine body and a tine substantially narrower than said body, and a cooperating resilient sheet engaging member having laterally spaced sheet engaging portions disposed substantially within the lateral limits of said body and cooperating with said tine and a portion intermediate said sheet engaging portions and connecting the same and overlying said first mentioned tine and having a longitudinal groove between said portions.

22. A sheet receiving member having a tine body and a tine substantially narrower than said body, and a cooperating resilient sheet engaging member having laterally spaced sheet engaging portions disposed substantially within the lateral limits of said body and cooperating with said tine and a portion intermediate said sheet engaging portions covering said first mentioned tine and having a longitudinal groove between said sheet engaging portions and also an upturned end portion above the end of said tine.

23. A sheet receiving member having a tine body and a tine substantially narrower than said body, and a cooperating resilient sheet engaging member having laterally spaced sheet engaging portions disposed substantially within the lateral limits of said body and cooperating with said body tine and a portion intermediate said sheet engaging portions overlying said first mentioned tine and preventing the passage of a sheet above one sheet engaging portion and below the other and a raised spring portion in rear of said sheet engaging portions and bendable to vary the tension exerted by the latter.

JOSEPH BARD.