

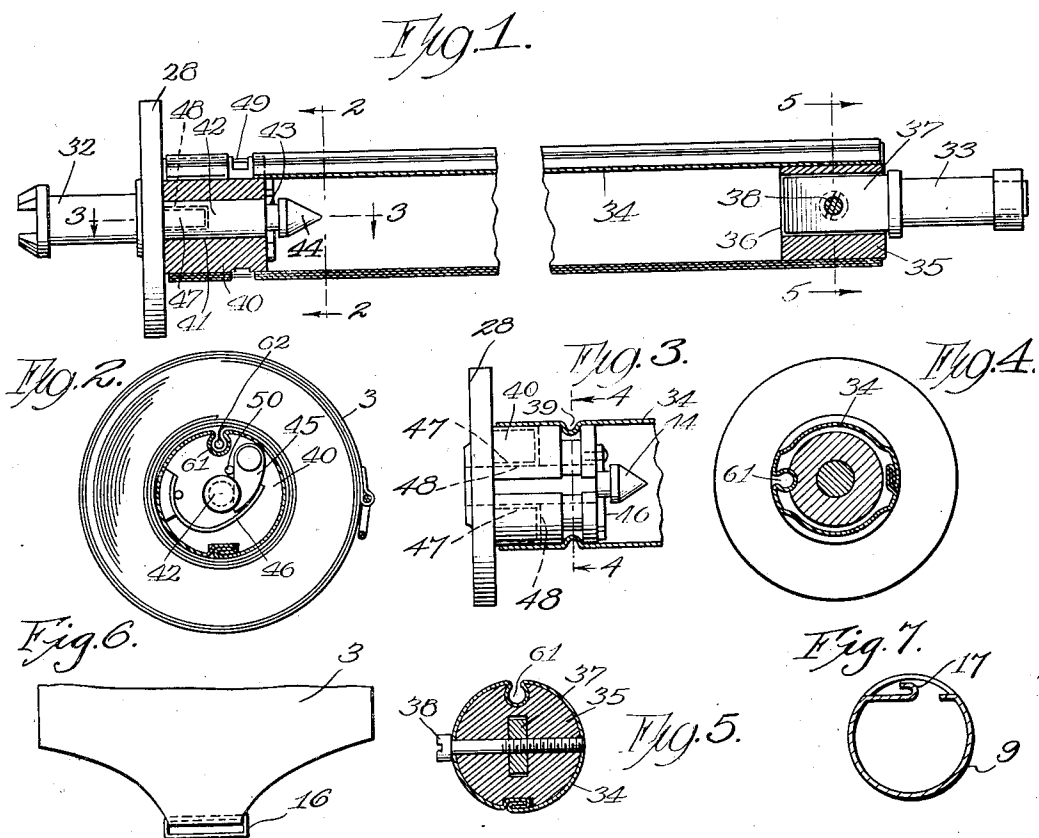
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J. J. FLANIGAN

DUPLICATING MACHINE

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UNITED STATES PATENT OFFICE.

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DUPLICATING MACHINE.

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This application is a division of my co-pending application Serial No. 20,890 filed April 6, 1925.

The invention relates to a hectograph duplicating machine of the type in which a gelatin band is stretched over a bed plate. When it is desired to make copies from a letter or the like this letter is brought into contact with the gelatin band, which has been moistened and a platen is moved over the letter, thus leaving an impression upon the band. This impression may then be transferred to sheets of blank paper by placing the same on the band in the position formerly occupied by the letter and again moving the platen over the paper and band. In my aforesaid co-pending application I have described and claimed a conveyor upon which rolls of gelatin band may be mounted and brought successively into position at one end of the bed plate where the band may be unrolled therefrom, stretched over the bed plate and secured to a reel at the other end of the bed plate.

One of the principal objects of the present invention is to provide a novel and improved spindle upon which a roll of gelatin band may be mounted and which when secured to the conveyor will be incapable of removal therefrom without destroying either the spindle or the conveyor, whereby unauthorized persons will be prevented from removing the spindle.

A further object of my invention is to provide a spindle of novel and improved form together with means for fastening the same to the conveyor in such a manner that it cannot be removed therefrom without destruction of the spindle together with means for permanently fastening the gelatin band thereto so that the band cannot be removed from the spindle without breaking either it or the spindle or some part of the mechanism.

Still another object is to provide a gelatin band permanently secured to a spindle and having its outer end provided with a clip adapted to engage the reel referred to above so that the band may be unwound from its spindle and wound upon the reel.

In the accompanying drawings in which I have shown a selected embodiment of my invention;

Fig. 1 is a longitudinal sectional view of one form of my novel spindle.

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary view of the end of a gelatin band showing the means by which it may be attached to the reel, shown in Fig. 7.

Fig. 7 is a transverse sectional view of a reel.

A gelatin band 3 is attached at one end to a spindle and at its other end it is provided with a clip 16 adapted to engage a hook 17 on a receiving reel 9. The hook is struck from the tubular sheet metal receiving reel 9 and is bent within the reel and has its free end bent outward and upon itself, the hook lying wholly within the reel. The spindle is designed to be permanently attached to the chains of a conveyor so that it may not be removed by unauthorized persons except by such mutilation as will render it unfit for use. The spindle is provided with journals 32 and 33 which are adapted to be supported in suitable bearings in the chains forming a conveyor.

This spindle further consists of a tubular sheet metal cylinder 34 secured at one end to a hub 35, provided with a rectangular shaped recess 36 receiving a similarly shaped part 37 of the journal 33. The parts are fastened together as by a bolt 38.

The other end of the tubular member 34 is secured as by crimping at 39 to a hub 40, said hub having a central bore 41 therein. This bore receives a stem 42 of the journal 32 and this stem is preferably provided with an annular groove 43 adjacent its end, the end being pointed, as shown at 44. Pivoted on the hub 40 at its end is a pawl 45 urged towards the center of the hub by the spring 46. When the stem 42 is inserted in the bore 41 its pointed end will force the pawl to one side and the pawl will then snap back into the groove 43. It will thus be seen that the spindle cannot be removed from the conveyor as the fastening means comprising the pawl 45 is completely enclosed within the body of the spindle. The disk 28, which forms a rigid part of the journal 32 is provided with means 47 engaging in a recess 48 in the hub to secure these parts together whereby they will rotate in unison.

The journals 32 and 33 being permanently

secured to the chains forming the conveyor, it will be seen that the spindle cannot be removed from the conveyor without destroying some vital part of the mechanism. The tubular member 34 is provided with one or more openings 49 adjacent the end having the hub 40 so that a suitable tool may be inserted therein to cut around the tubular member and thus permit its removal, but it will be seen it is necessary to destroy the spindle in order to effect its removal. The hub 40 is provided with a suitable stop 50 to limit movement of the pawl 45 beyond a point where it may be readily pushed aside by the point 44 of the stem 42.

A groove 61 is provided in the tubular member 34, in which the end of the band may be inserted and secured in place by a wire 62, as plainly shown in Fig. 9. This wire is of a length such that it will be completely covered by the gelatin band when rolled upon the spindle and therefore it is impossible to remove the same without sliding the band lengthwise out of the groove 61, and this is impossible. Movement of the wire in one direction is blocked by the disk 28 and in the other it may be effectively prevented by tightly crimping together the sides of the groove 61.

I am aware that changes in the form, construction and arrangement of parts may be made without departing from the spirit and without sacrificing the advantages of the invention and I consider myself entitled to make all such changes as fairly fall within the scope of the following claims.

I claim:—

1. A spindle for a gelatin band comprising a tubular member, a hub permanently secured in one end thereof, a pawl pivoted on the inner end of said hub and spring pressed towards the center thereof, said hub having a bore therethrough, a journal having a stem inserted in said bore, said stem provided with a groove to receive said pawl.

2. A spindle for a gelatin band comprising a tubular member, a hub permanently secured in one end thereof and having a central bore therein, a pawl pivoted on the inner end of said hub, means yieldingly urging said pawl towards said bore, means limiting the movement of said pawl towards said bore, a journal having a stem provided with a groove adjacent the end thereof, said pawl snapping into said groove when said stem is inserted in said bore.

3. A spindle for a gelatin band comprising a tubular member, a hub permanently secured in one end of said member and having a longitudinal bore, a journal for the spindle and provided with a stem adapted to be inserted in said bore, and means for detachably securing said spindle to said hub.

4. A spindle for a gelatin band comprising a tubular member, a hub permanently se-

cured in one end of said member and having a longitudinal bore, a journal for the spindle having a stem adapted to be inserted in said bore, and means on the hub for detachably securing the spindle to the hub.

5. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore into said member, and means beyond the end of the hub and within the member engaging said stem for permanently securing the journal to the member.

6. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore into said member, and spring control means beyond the end of the hub and within the member engaging said stem for permanently securing the journal to the member.

7. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore and beyond the hub into said member, said stem having a groove between the inner end of the hub and the inner end of the stem, and means within the member engaging said groove for permanently securing the journal to the member.

8. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore and beyond the hub into said member, and yielding means within the member arranged within the path of the stem as it is projected through the bore to engage the stem for permanently securing the journal to the member, said stem having a pointed inner end to pass said means.

9. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore and beyond the hub into said member, and means on the inner end of the hub for engaging the stem to permanently secure the journal to the member.

10. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore

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and beyond the hub into said member, said stem having a groove between the inner end of the hub and the inner end of the stem, and a spring pressed pawl mounted on the inner end of the hub and arranged to engage said groove for permanently securing the journal to the member.

11. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a journal for the spindle outside of the member and having a stem projecting through said bore and beyond the hub into said member, said stem having a groove between the inner end of the hub and the inner end of the stem, and a spring pressed pawl mounted on the hub to engage said groove for permanently securing the journal to the member, the inner end of the stem being pointed to pass the pawl when the stem is inserted in the hub and member.

12. A spindle for a gelatin band comprising a tubular member, a hub secured in one end of said member and having a bore extending longitudinally therethrough, a jour-

nal for the spindle outside of the member and having a stem projecting through said bore and beyond the hub into said member, means for permanently securing the journal to the member, said hub having a recess at its outer end, and a disk rigid with the journal and permanently secured therewith to the member and having a projection engaged with said recess whereby the disk and spindle will rotate in unison.

13. A spindle for a gelatin band comprising a tubular sheet metal member, a hub secured in one end of said tubular member and provided with a groove, and a journal permanently secured in said hub, said tubular member having an opening opposite said groove in the hub to permit the insertion of a tool for cutting the tubular member and separating it from the journal.

14. A reel for a gelatin band comprising a tubular sheet metal member having a hook struck therefrom and bent within the member, said hook having its free end bent outward and upon itself, but lying wholly within the member.

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