

July 18, 1933.

M. B. SMITH

1,919,175

TERMINAL FOR DRAG CONVEYERS

Filed March 14, 1930

3 Sheets-Sheet 1

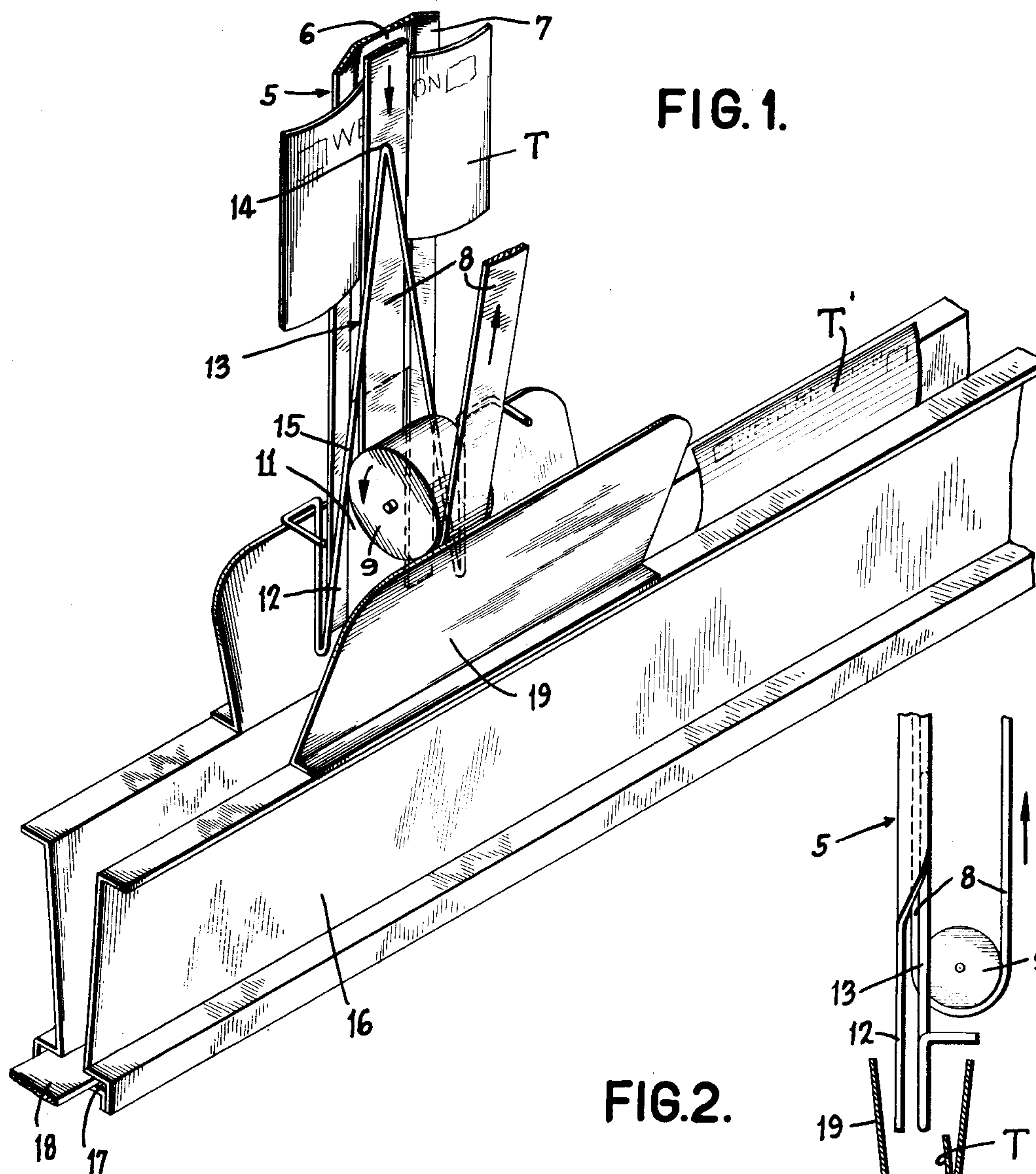


FIG.2.

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July 18, 1933.

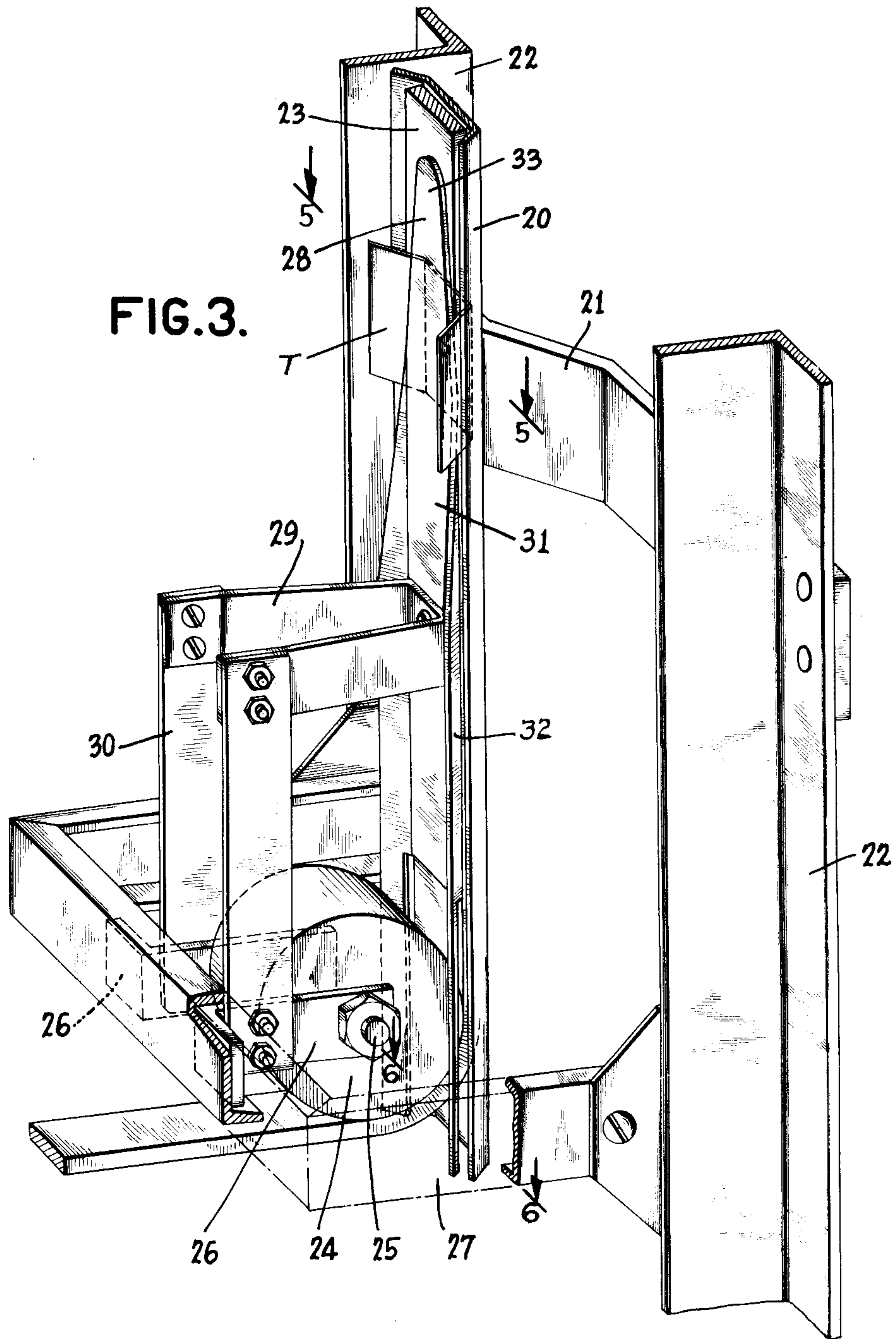
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

FIG.4.

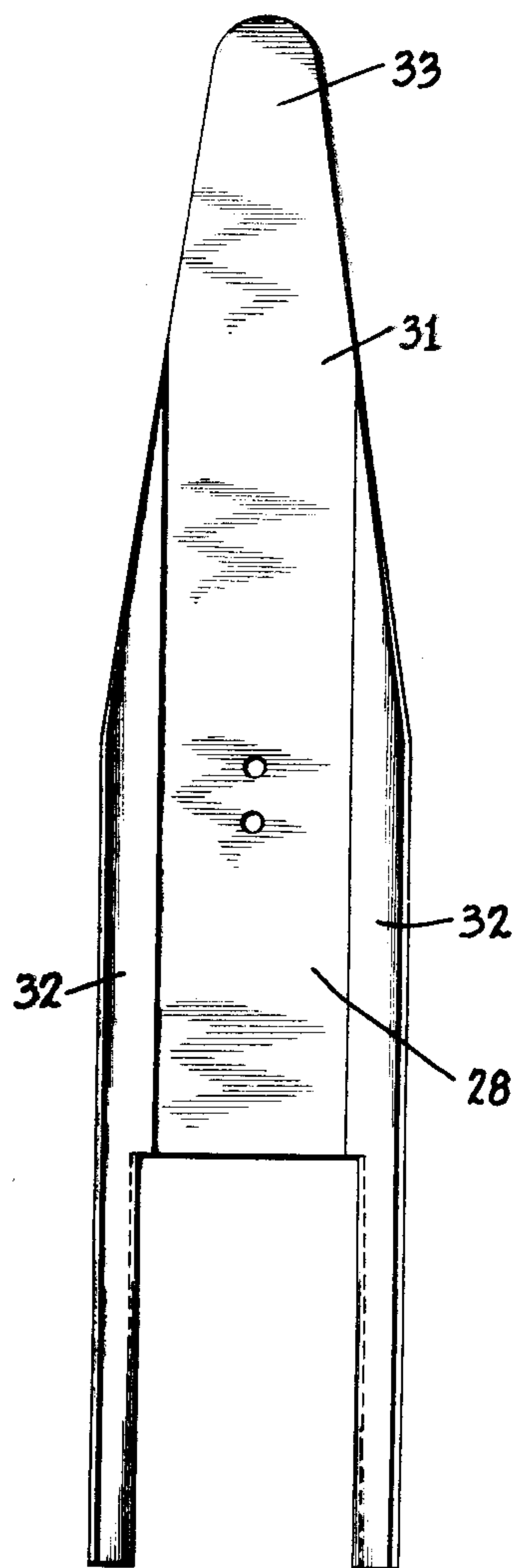


FIG.5.

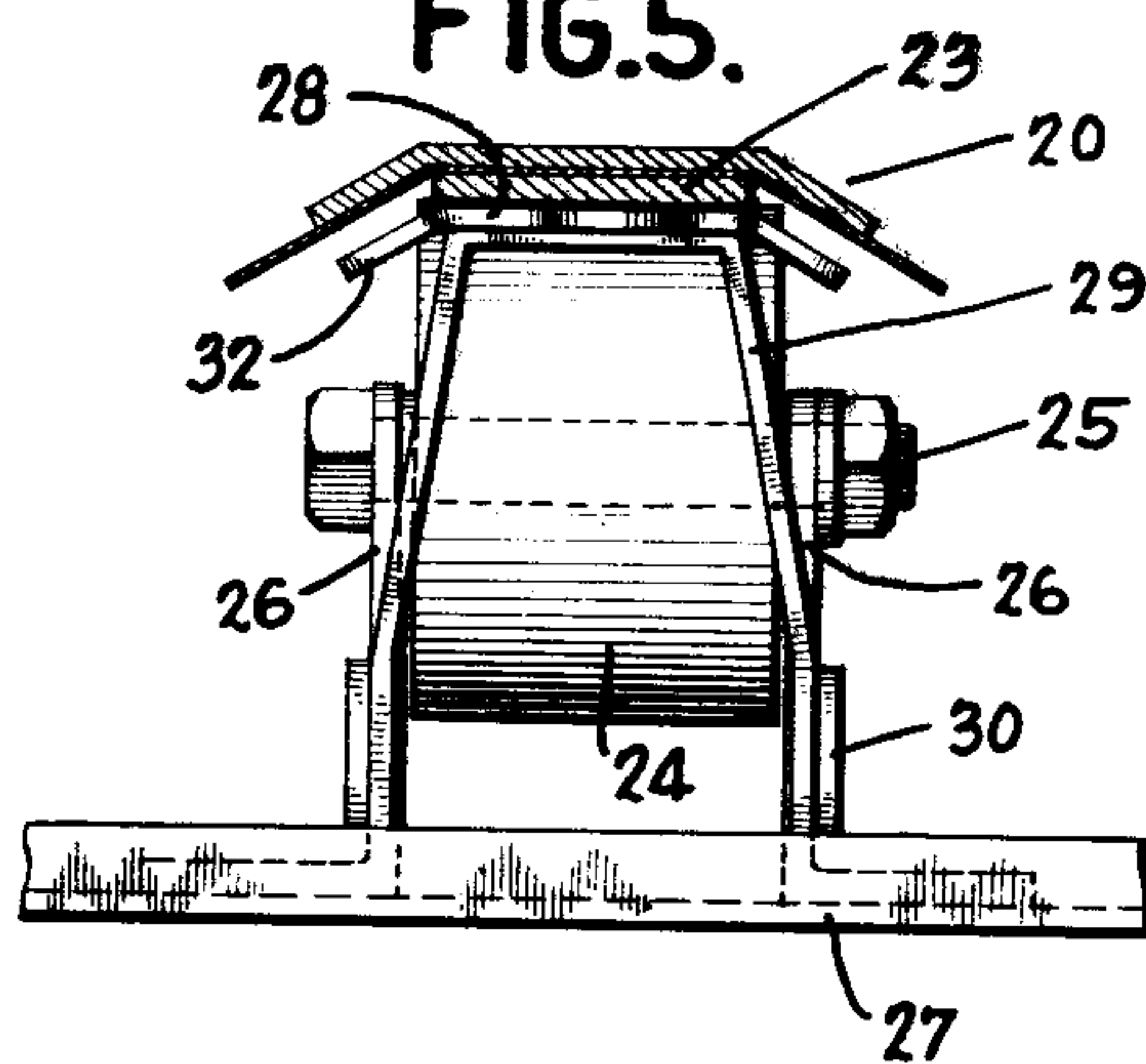
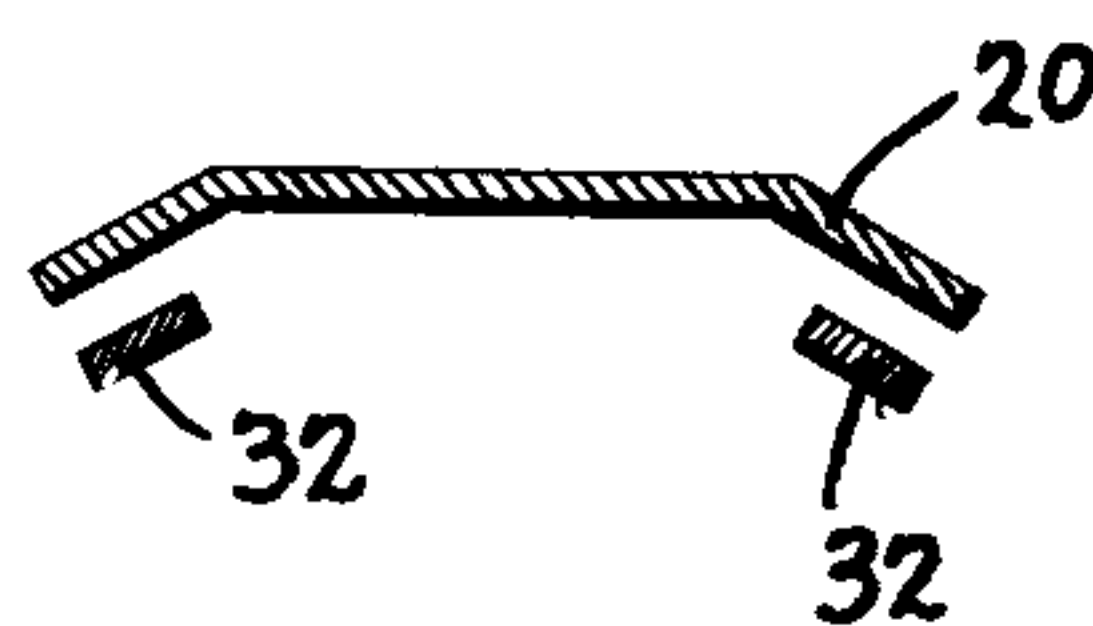


FIG.6.



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TERMINAL FOR DRAG CONVEYERS

Application filed March 14, 1930. Serial No. 435,868.

This invention relates to conveyers for sheet material, such as letters, telegrams, and the like, in which the articles are transported in a substantially flat or unfolded condition.

5 In central telegraph offices it is the customary practice to transport telegrams from one part of the office or from one operator or attendant to another, by means of conveyers. These conveyers take a variety of forms depending on the service to be performed, the length of the conveyer, and other considerations, and the conveyer system of a large office may consist of a number of conveyers of different forms feeding into one another. 15 For instance, for conveyers of considerable length and where vertical or inclined runs are desirable, it is advantageous to employ a drag conveyer, such as is described in a co-pending application of F. E. d'Humy et al., 20 Serial No. 421,126, filed January 20, 1930, and entitled "Drag conveyer." Briefly, the drag conveyer described in the above mentioned application consists of a single endless belt of a width considerably less than the width of the articles to be conveyed, the belt being dragged along its main or operating run in a flat trough having outwardly flaring or diverging side walls. The articles are conveyed between the belt and the trough 30 with the edges of the articles extending over at least a part of the flaring sides.

On short horizontal runs, particularly past telegraph receiving and transmitting operator positions, it is customary to employ a 35 V-trough conveyer, such as is described in patent of F. E. d'Humy et al., No. 1,801,906 granted April 21, 1931 and entitled "Belt conveyer." In this type of conveyer the articles are carried in a substantially vertical or on-end position so that the address, routing data, and similar information, is readily visible and the conveyer is constructed so that telegrams may be placed therein or removed therefrom, by the operator, at any 45 point along its length.

The present invention is especially concerned with a conveyer of the drag type but has for one of its objects the provision of 50 means for transferring sheet material from

a drag conveyer into a conveyer of the V-trough, or other type.

Another object is to provide an improved outlet terminal construction for a drag conveyer, to facilitate the discharge of the sheet 55 articles from the conveyer.

Other objects and advantages will hereinafter appear.

In accordance with one embodiment of my invention, I terminate the drag conveyer in a vertical run discharging downwardly, and in advance of the lower end thereof, I pass the belt around a roller positioned adjacent the face of the trough instead of adjacent the rear of the trough, as in the remaining 60 parts of the conveyer system.

To assist in the discharge of the sheet material, and to prevent the articles from becoming engaged between the belt and the feed roller, or from following around the roller with the belt, should they adhere thereto, as by static, I provide a guide member in the general form of an inverted V, having its apex adjacent the side of the belt away from the trough, in advance of the roller, and having the leg portions disposed at opposite sides of the roller. 65

The guide member has its corresponding parts substantially parallel to the trough whereby a guideway is formed from in advance of the roller, to the outlet end of the conveyer. 70

The trough or a portion thereof and the guide member extend vertically downward below the end of the belt to direct the articles in their proper downward course, and may terminate within the opening of a tray or other receptacle, or another conveyer, such as a V-trough conveyer. 75

In order that the invention may be more fully understood, reference will be had to the accompanying drawings in which:

Figure 1 is a perspective view of the outlet end of a drag conveyer discharging into a V-trough conveyer; 80

Figure 2 is a side elevation of the outlet end of the drag conveyer, showing the V-trough conveyer in section;

Figure 3 is a detailed perspective view of 85

the discharge end of a modified form of terminal;

Figure 4 is an elevation of the guide member employed with the terminal shown in Figure 3;

Figure 5 is a section on the line 5—5 of Figure 3, and;

Figure 6 is a section on the line 6—6 of Figure 3.

The drag conveyer shown in Figure 1 comprises a trough 5 having a base 6 and outwardly flaring sides 7, and a belt 8 of a width slightly less than the width of the base 6, the belt traveling in the trough in frictional contact with the base. The articles to be conveyed, such as telegram blanks T, are disposed in the conveyer between the belt 8 and the trough, the sides of the articles extending over the flaring side walls 7 so as to assume a substantially concave shape. The trough serves as a guide for the belt, and on horizontal runs as a support therefor, and the flaring sides 7 prevent the articles from working out from under the belt at either side thereof.

At the outlet end of the drag conveyer, the trough and belt are directed vertically downward, the belt passing around an end roller 9 and thence by any convenient return path to the opposite end of the conveyer.

The outwardly flaring sides of the trough are flattened out into the plane of the base, at their lower ends, as at 12 and the base of the trough is cut away as at 11, although this is not essential. The flattened-out side flanges 12 extend vertically downward below the roller 9.

A guide member 13, which may be a wire bent into a hairpin or inverted V-shape, has its apex 14 positioned against the side of the belt away from the trough, above the roller 9 with the downwardly diverging portions 15 of the guide extending across the opposite sides of the roller 9 and downward below the pulley, substantially parallel to and spaced from the ends 12 of the trough. The guide 13 may be supported in any suitable manner from the conveyer frame, not shown, similarly to the guide 28 of Figure 3.

The flattened-out side flanges of the trough permit the telegram blanks to straighten out as they approach the roller 9, and this straightening out process is assisted by the guide 13, which engages the outer ends of the telegrams and forces them backward toward the flanges of the trough. The guide member also precludes any possibility of the ends of the telegram blank becoming bent over against the rear side of the belt and thus becoming engaged between the belt and the roller 9. It also prevents the telegrams from adhering to the belt and passing with the belt around the roller 9.

Beneath the end of the drag conveyer is a

conveyer of the V-trough type into which the drag conveyer discharges. The V-trough conveyer comprises a trough having diverging side walls 16 opening at the bottom into a rectangular housing 17 through which a horizontal flat belt 18 travels. The sheet articles are conveyed through the V-trough conveyer in a vertical or on-end position as indicated at T' and they may be readily removed from or placed in the conveyer at any point along its length. The ends 12 of the trough and the diverging leg portions 15, of the guide 13, of the drag conveyer, terminate a sufficient distance above the belt 17 of the V-trough conveyer so as not to interfere with the through passage of articles T' in the V-trough. Adjacent the discharge end of the drag conveyer, the V-trough conveyer has a pair of flaring extensions 19 projecting upwardly at each side of the ends 12 of the trough and guide member 15, so as to insure the deposition of the article into the V-trough conveyer.

The straightening of the telegram blanks from the concave form in which they are conveyed, into a substantially vertical plane permits them to discharge in a relatively narrow trough. I have discovered, however, that if the sheet material is maintained in concave shape, that is, with the vertical sides bent relative to the body portion as they discharge from the conveyer, greater rigidity is obtained and the articles can be projected downwardly at a relatively high speed and for materially greater distances without undue deflection from air currents and the like, and in Figures 3 to 6 I have shown a modification of the discharge terminal of the drag conveyer in which the material is discharged in this shape.

In Figure 3 the drag conveyer channel 20 is shown supported by a cross brace 21 extending horizontally between two vertical angle irons 22 forming a part of the conveyer frame. The belt 23 travels vertically downward in contact with the channel 20 and around the roller 24. The roller 24 is supported on a bolt 25 carried by a pair of bracket arms 26 supported from a rectangular bracket 27 which in turn is secured to the frame members 22. The channel 20 extends a slight distance below the roller 24.

The guide member 28 of the shape shown in Figure 4 is supported adjacent the lower end of the channel and parallel thereto by a stirrup 29 supported from the bracket arms 26 by vertical strips 30. The belt 23 passes between the guide member 28 and the channel 20.

The guide member may be formed from a portion of a channel and comprises a base portion 31 and outwardly flaring side flanges 32, the side flanges and the base tapering inwardly at the upper end to form a narrow top portion 33. The base of the guide mem-

ber is cut away at the lower end to permit the roller 24 and the belt 23 to pass between the side flanges 32 and the side flanges extend downwardly below the roller parallel
 5 to the channel 20 to form a guideway for the message blanks. The messages T are carried downwardly in the channel with the vertical edges curved between the outwardly extending flanges of the guide and channel and due
 10 to the velocity of travel thereof, it is projected from between these members at the lower end thereof with considerable force. The flaring flanges of the guide and channel maintain the paper curved thus imparting
 15 sufficient rigidity thereto to prevent appreciable fluttering or deflection of the paper due to air currents or air resistances. The guide members also prevent the edges of the paper from becoming folded over in such a
 20 way as to become engaged between the belt and the roller 24 and also prevents the articles from following around the roller with the belt due to static.

It is obvious that numerous changes and
 25 modifications may be made in the construction of the terminal of the drag conveyer and in the manner of directing the articles into a V-through conveyer or other receptacle and, therefore, I do not desire to be limited to the
 30 details shown and described except in accordance with the appended claims.

What I claim is:

1. A drag conveyer comprising a stationary support having a base and outwardly extending sides, a belt positioned to travel in
 35 contact with said support, whereby sheet material may be conveyed intermediate said support and belt, means for deflecting said belt away from said support and a guide
 40 member having portions extending substantially parallel to the sides of said support, and forming with said sides a guideway for directing said material past the point of deflection of said belt.

2. A drag conveyer comprising a trough having a base and outwardly flaring side flanges, a belt positioned in said trough to
 45 travel therein, whereby sheet material may be conveyed intermediate said trough and belt with the edges of said material extending
 50 over said side flanges and disposed at an angle to its midportion, and a guide member arranged at the opposite side of said belt and having portions extending substantially
 55 parallel to said side flanges to form a guideway for the edges of said material offset from the plane of the belt.

3. A drag conveyer comprising a trough having a base and outwardly flaring side
 30 flanges, a belt positioned in said trough to travel therein, whereby sheet material may be conveyed intermediate said trough and belt with the edges of said material extending
 65 over said side flanges and disposed at an angle to its midportion, and a guide mem-

ber comprising a trough arranged at the opposite side of said belt substantially parallel to said first trough, the side flanges of said troughs being spaced apart so as to form a
 70 guide channel for the edges of said material, diverging from the plane of the belt.

4. A conveyer for sheet material comprising a pair of trough members having outwardly flaring side flanges, said members
 75 being spaced apart in parallel relation, a belt positioned to travel between said trough members in contact with one thereof for conveying sheet material intermediate said
 80 trough and belt, with the edges of said material extending outwardly between said parallel side flanges at an angle to the midportion thereof.

5. A drag conveyer for sheet material comprising a trough member, a belt positioned to travel in said trough in contact
 85 therewith for conveying said sheet material between said belt and trough, said trough having side flanges extending beyond the sides of said belt, a roller adjacent the discharge end of said conveyer around which
 90 said belt passes at an angle to said trough, and a guide member arranged adjacent the outer side of said belt and having a forward portion of less width than said belt positioned in advance of the roller and spaced
 95 apart leg portions extending to each side of said roller.

6. A drag conveyer for sheet material comprising a trough member, a belt positioned to travel in said trough in contact
 100 therewith for conveying sheet material between said belt and trough, said trough having side flanges extending beyond the sides of said belt, a roller adjacent the discharge end of said conveyer around which said belt
 105 passes at an angle to said trough, and guide members extending to each side of said roller substantially parallel to and spaced from said side flanges for forming a guideway past said roller for said sheet material.

7. A drag conveyer for sheet material comprising a trough member, a belt positioned to travel in said trough in contact
 110 therewith for conveying sheet material between said belt and trough, said trough having side flanges extending beyond the sides of said belt, a roller adjacent the discharge end of said conveyer around which said belt
 115 passes at an angle to said trough, and a guide member having portions extending to each side of said roller substantially parallel to and spaced from said side flanges for forming a guideway past said roller for said sheet material, said guide member terminating in
 120 advance of said roller within the confines of said belt.

8. The combination of a trough having a base and outwardly extending sides, a belt positioned to travel in said trough in contact
 130 therewith for conveying sheet material inter-

mediate said belt and trough, a roller adjacent the outlet end of said conveyer around which said belt passes, a guide member associated with said belt in advance of said roller, the trough and guide member extending beyond the roller in the direction of travel of the conveyer and serving to guide said sheet material out of said conveyer.

9. The combination of a trough having a base and outwardly extending sides, a belt positioned to travel in said trough in contact therewith for conveying sheet material intermediate said belt and trough, a roller adjacent the outlet end of said conveyer around which said belt passes, a guide member associated with said belt in advance of said roller, the trough and guide member extending beyond the roller in the direction of travel of the conveyer and serving to guide said sheet material out of said conveyer, and a second conveyer disposed beneath the outlet end of said drag conveyer to receive said sheet material therefrom.

10. The combination of a drag conveyer comprising a trough having a base and outwardly extending sides, a belt positioned to travel in said trough in contact therewith, whereby said sheet material may be conveyed intermediate said belt and trough, a roller adjacent the outlet end of said conveyer around which said belt passes, a guide member associated with said belt in advance of said roller and a second conveyer having an inlet opening disposed beneath the outlet end of said drag conveyer, said trough and guide extending beyond the roller in the direction of travel of the drag conveyer and terminating within said inlet opening of said second conveyer and serving to guide said sheet ma-

terial from said drag conveyer into said second conveyer.

11. A conveyer for sheet material comprising a longitudinally extending support, a belt supported upon said support and arranged to travel in contact therewith, whereby sheet material may be conveyed intermediate the belt and support with the sides of the material extending outwardly beyond said belt and a stationary guide member disposed substantially parallel to said support and having means for guiding the outwardly extending sides of said material in a direction such as to deflect the material from the belt in a longitudinal direction at a certain point therealong.

12. A conveyer for sheet material comprising a pair of stationary guide members of less width than the sheets and spaced apart in parallel relation and a belt positioned to travel between said members in contact with at least one thereof for conveying sheet material intermediate said guide and belt, said belt being of a width materially less than said sheet material or guides, whereby a portion of the sides of said sheet material extending outwardly beyond said belt is carried between said guides.

13. A drag conveyer comprising a conveyer element, a belt positioned to travel in contact therewith whereby sheet material may be conveyed therebetween, means for deflecting the belt away from said conveyer element, and a guide member disposed substantially parallel to the conveyer element and spaced therefrom, said guide having a forward portion of less width than the belt and spaced apart leg portions extending to each side of the belt.

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